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THE UNIVERSITY OF ALBERTA

THE FUNCTIONAL APPLICATION OF PHONIC KNOWLEDGE BY  
GRADE THREE AND GRADE SEVEN PUPILS

by

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A THESIS

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UNIVERSITY OF ALBERTA  
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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies for acceptance, a thesis entitled "The Functional Application of Phonic Knowledge by Grade Three and Grade Seven Pupils" submitted by William Theophane Fagan in partial fulfilment for the degree of Master of Education.





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## ABSTRACT

This study tested the phonic knowledge of Grade Three and Grade Seven pupils and then attempted to determine the degree to which these pupils were using this knowledge to unlock the pronunciation of words in an oral reading situation. The difference between the amount of phonic knowledge attained by the pupils of each of these grades was also ascertained.

The experimental group used in this study consisted of thirty-six Grade Three pupils and thirty-six Grade Seven pupils of an Edmonton Public School. Each grade sample was divided into three groups of high, average, and low reading achievers, and these groups in turn were divided by sex. A phonic test based on the Boyd Test of Phonetic Skills, though modified somewhat for this study was used to determine the phonic knowledge of these pupils. Syllabication and accent principles were also tested. Separate Reading Tests designed to measure the application of phonic knowledge in oral reading of continuous prose and constructed especially for this study, were then administered to the pupils of each grade. All tests were individual and were administered by the investigator in May, 1965.

Correlations and t-tests were used in the analysis of the resulting data.

This analysis revealed that the Grade Seven sample had acquired a significantly greater amount of phonic knowledge than was attained by the Grade Three pupils. The correlations between





phonic and reading scores, however, showed that a higher relationship between scores on corresponding sections of the Phonics and Reading Test occurred for the Grade Three sample as compared with the Grade Seven sample. The low readers of each grade made a greater effort to use their phonic knowledge than did the other groups and the boys as a group were better in applying their phonic knowledge than were the girls. The degree of correlation however, varied according to group, and to phonic principle involved.

On the basis of the results of this study a number of implications and recommendations for teachers are presented and suggestions given as to the ways in which the phonic knowledge of their pupils might be made more functional.



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## CHAPTER I

### STATEMENT OF THE PROBLEM

"Phonics" has been and still is, one of the most controversial topics in the reading field. Journal articles with such titles as "Am I Teaching Phonics Right?" "Some Misconceptions Concerning Phonics" and "Is English a Phonetic Language?" indicate some degree of confusion about the use of phonics. (34, p. 210) Heilman (34) quotes Hildreth as saying that "recent controversies over methods of teaching reading indicate that misconceptions concerning phonics are fairly common." (34, p. 26)

However, misconceptions concerning "phonics as an aid" to help children unlock the pronunciation of unfamiliar words, are no longer held by many people. Most people would agree with Russell's (51) statements on the advantages and disadvantages of the phonics method of teaching reading. He says:

The advantages and disadvantages of the phonics method may be summarized by saying that there is no superiority in the phonics method, when used as the sole or principal method of teaching, over other methods. However, it may have value in combination with other methods, particularly for certain pupils who seem to respond readily to auditory clues. For teachers the important point is not phonics versus no phonics but the extent to which it should be used and the methods and materials employed by the pupils in phonetic-analysis activities. The question is not how phonics can be crammed into early reading but how it can be used by varied learners in different reading situations. Accordingly, some contrasts in timing and procedures and some principles for the use of phonetic analysis in the reading program are important in teacher and curriculum planning. (51, p. 305)







However though the question of "Phonics or no phonics" has been settled, misconceptions concerning the degree to which phonics is functional and methods by which phonics can be best made to function are still prevalent.

Salzer (54) in 1962, conducted a study to determine the degree to which phonics was functional. He attempted to do this by determining the awareness of children of selected phonic generalizations after one and three years instruction in a reading program emphasizing the sight approach to beginning reading on one hand, and a phonic approach on the other. The children were given a list of nonsense words which they had to pronounce and give their reasons for their choice of pronunciation. He found some differences in favor of the phonic first approach at the Grade I level, but these differences were negligible when the pupils reached Grade III.

In his "Conclusions and Recommendations," he stated that this study indicated only what understandings the subjects were able to call up when confronted with the necessity of doing so. He went on to state that there is no proof that these generalizations actually function in word recognition. "Indeed," he says, "in many instances where the subjects expressed a desire to change their pronunciation after looking at the word again and attempting to justify their original pronunciation, it appears that entirely different causes other than phonic generalizations may have impelled the original pronunciation." (54, p. 96)



Many investigators prior to the time of Salzer's research attempted to show that phonics is definitely related to success in reading. No research however has been found by the writer which looked specifically at a knowledge of phonics as measured on a phonics test and then attempted to see if this knowledge of phonics was applied in attacking words in a continuous prose passage.

#### PURPOSE OF THE STUDY

It is the purpose of this study to test the knowledge of phonic principles of Grade Three and Grade Seven pupils by means of an individual phonics test. It is then proposed to determine the extent to which this knowledge of phonics is transferred to a connected prose passage read orally, and designed especially for this study.

#### DEFINITIONS OF TERMS

The following terms are often defined differently by different writers. For the purpose of this study the following definitions are proposed.

Phonics--a facet of reading instruction associating letters and groups of letters with appropriate speech sounds.

Phonic principle--a generalization that can be made about attaching a speech sound to a certain letter or group of letters, for example, when g is followed by e, the g has the same sound as j, gem. This





also includes a generalization about a straight sound-symbol relationship, for example, the speech sound that is associated with a 'b' in an initial position.

Functional phonics--phonic principles that are employed by the child in attacking unfamiliar words in a reading situation.

Actual reading situation--this includes a reading situation in the form of a story or paragraph which has meaning within its contextual setting as opposed to reading a list of words or a number of unrelated sentences.

Phonogram--this term is used for a combination of two or more letters to which a particular sound has been applied and while holds true under all circumstances. It usually occurs at the end of a word, for example, 'tion', 'ing', 'al'. This term excludes 'digraphs', 'diphthongs', and 'blends', but may be synonymous with 'suffix'.

Controller--this refers to a syllable consisting of a vowel followed by the letters, 'r', 'l', or 'w'. The letters 'r', 'l', or 'w', complete the sound of the preceding vowel.

Consonant digraph--this refers to two or more consonants, which when occurring together have a sound unlike that of either letter, for example, 'th', 'ck'.

Vowel digraph--this refers to vowel-vowel combination which may have a sound of one or neither of the vowels, for example, 'ea', 'oa', 'ay', 'ie'. For the purposes of this study, this term includes 'diphthongs', which always have a sound unlike either





of the vowels, for example, 'oi', 'oy', 'ou', 'ew'. "A diphthong can be thought of as the vowel counterpart of a digraph." (21, p. 70)

Sight word--a word to which a pupil has been exposed so often that on successive occasions he recognizes it immediately.

Utilization of phonic knowledge--the use of phonic knowledge or principles in attempting to sound out the real words of the stories comprising the Reading Tests used in this study. The assumption has been made that the scores on the Phonics Test indicate the degree of such knowledge attained by the pupils. Statements may be made about the extent to which phonic knowledge is being utilized from an analysis of the correlation coefficients and the degree to which the scores on both tests are related. For the purposes of this study, 'utilization of phonic knowledge' is synonymous with 'application of phonic knowledge'.

#### HYPOTHESES

In the light of the statements in the preceding sections, the following hypotheses have been formulated and are tested in this study.

1. There is no relationship between a knowledge of phonics as measured by a Phonics Test, and the application of this knowledge to an actual reading situation for:
  - (a) a group of thirty-six Grade Three pupils.
  - (b) high, average, and low reading achievers of this group.
  - (c) boys, and girls of the three sub-groups.



2. There is no relationship between a knowledge of phonics as measured by a Phonics Test, and the application of this knowledge to an actual reading situation for:
  - (a) a group of thirty-six Grade Seven pupils.
  - (b) high, average, and low reading achievers of this group.
  - (c) boys, and girls of the three sub-groups.
3. There is no significant difference between the mean scores on the Phonics Test, by Grade Three and Grade Seven pupils.

#### ASSUMPTIONS

1. It is assumed that a knowledge of phonics and the application of this knowledge to a reading situation can be measured, and that test instruments can be devised for this purpose. It is accordingly assumed that the Phonic Test used in this study will measure the pupils' knowledge of phonics, and the score will indicate the degree of phonic knowledge attained by these pupils. It is maintained that the real words of the stories comprising the Reading Tests will indicate the degree of phonic knowledge which these pupils use in an actual reading situation.
2. It is assumed that the majority of real words on the Reading Tests will be unfamiliar to the pupils of this study and thus will not be immediately recognized as sight words.





5. The assumption is made that the Pearson product-moment correlation used in this study will show that a relationship does or does not exist between the scores on corresponding sections of the Phonics and Reading Tests. It is accordingly assumed that if a relationship does exist, similar factors may likely be causing the scores on both tests.
4. It is assumed that a high positive correlation between the scores on any two corresponding sections of the Phonics and the Reading Test indicates that the amount of phonic knowledge used by the pupil in one test situation is proportionately comparable to the amount used in the other. It is on this basis that a statement may be made about the utilization of phonic knowledge. A high negative correlation also shows that the scores on one test vary consistently with the scores on the other. However, a negative correlation would also indicate a discrepancy in the amount of phonic knowledge used in both test situations.

#### ORGANIZATION OF THE EXPERIMENTAL STUDY

In this study, emphasis was placed on the amount of phonic knowledge attained by Grade Three and Grade Seven pupils as measured by a phonics test and the degree to which this knowledge of phonics, as indicated by the scores on a phonics test and on sixteen subsections thereof, are correlated with scores on corresponding sections of a reading test.





An attempt was also made to look at the correlations between phonics and reading scores of three sub-groups of high, average, and low reading achievers; and of boys and girls within these groups.

Both the Phonics and the Reading Tests are individual tests. The Phonic Test is based on the Boyd Test of Phonetic Skills and is similar for both grades. Separate Reading Tests for both grades have been constructed by the investigator, especially for this study. These tests were administered to a sampling of Grade Three and Grade Seven pupils in an Edmonton Public School in May, 1965.

All tests were administered and scored by the investigator. The results were programmed at the Computing Center at the University of Alberta. Correlations were obtained between the total and sub-scores of the Phonics Test, and the corresponding scores of the Reading Test, for both grades. A "t" test was run to determine if any significant differences existed between the scores on the Phonics Test for the Grade Three and Grade Seven sample. An analysis of the resulting data was then made by the investigator.

#### DELIMITATIONS

1. It is not the purpose of this study to show or conclude:
  - (a) whether pupils have internalized the phonic principles taught and can verbalize them as such.
  - (b) whether pupils comprehend the words they pronounce.



2. Some attempt will be made to control the sentence structure and vocabulary, so that pupils will not arrive at the meanings of the particular words from context. There is no guarantee, however, that this will be effective.
3. Language patterns will not be carefully controlled. Some attempt will be made to use patterns typical of current reading materials.
4. The degree to which a pupil may have previously encountered the words on the Reading Tests, and now uses the "sight approach" in the pronunciation of such words, will not be considered.
5. In view of Clymer's study (14) that many exceptions to phonic principles occur, emphasis will be placed, not on the application to symbols of one particular pronunciation, but on the extent to which a pupil applies to the symbols, a sound-symbol relationship that is accepted within the English language.

#### SIGNIFICANCE OF THE STUDY

Most educators of today agree that phonics is of some value in teaching reading. However, from classroom observations and discussions with teachers, it appears that it is all too common for teachers of today to become too complacent in their teaching of phonics. They tend to follow Guidebooks slavishly





and feel they have done a good job when a child scores a high mark on an assigned phonics test. What they do not realize is that much of this phonic knowledge as measured by a phonics test is not being transferred to actual reading situations by the child. Though he may get a perfect score on consonant blends on a phonics test, he may very well fail to pronounce these blends correctly when they are contained within a word. Clymer's (14) study has shown that in four Primary Reading Series, of all the words containing a certain principle, the generalizations in most cases do not apply seventy-five per cent of the time.

It is hoped that the results of this study show more clearly the need for critical evaluation in teaching phonics. Teachers should determine the value of phonics, not on how much the child scores on a phonics test, but on how much of this knowledge he applies when actually attacking words in his reading. Consequently teachers should teach with this intention of transfer in mind.

It is further hoped that the results of this study show to what degree the Grade Seven pupils retain a knowledge of phonics since the Guidebooks for Curriculum Foundation and the Ginn Basal Reading Series, include most of the phonic principles used in teaching reading, by the end of the Grade Three reading program. By noting the extent to which the amount of phonic knowledge possessed at this level is functional, teachers of the upper elementary Grades might be better able to decide to what extent it is feasible to teach phonics at this level.





## CHAPTER II

### REVIEW OF THE LITERATURE

For many years a controversy has raged over the value of phonics in reading. In recent years, opinion and research appear to weight the scale in favor of phonics as one of the aids to help children sound out unfamiliar words.

However, the fact that this goal has been set for phonics, does not necessarily mean it is being achieved. Very often teachers teach their pupils a number of phonic rules assuming that such rules will be used by these children in attacking unfamiliar words.

A study by Clymer (14), reported in the January 1963 edition of the Reading Teacher attempted to discover the utility of phonic generalizations that are being taught to children in primary grades.

After analysing forty-five phonic generalizations and their application to words in four sets of basal readers, and the Gates Reading Vocabulary for Primary Grades, he found that only eighteen of these generalizations applied seventy-five per cent of the time.

In his conclusions, Clymer stated:

In evaluating this initial venture in testing the utilization of phonic generalizations, it seems quite clear that many generalizations which are commonly taught are of limited value.



Certainly the study indicates that we should give careful attention to pointing out the many exceptions to most of the generalizations that we teach. Current "extrinsic" phonics programs which present large numbers of generalizations are open to question on the basis of this study. (14, 1. 258).

Much has been written and many experiments have been conducted to show that phonics is of value. Experiments have attempted to prove the latter point of view in a number of ways. Some have shown the superiority of a phonic method over other methods by comparing the reading results of children taught by a phonic method with the results of those taught by a non-phonic method, while others using a similar experimental technique have come up with opposite conclusions. Another group of experimenters attempted to prove the value of phonics by correlating scores made on a phonics test with scores made on standardized reading tests, and have generally found high correlations. Finally a group of investigators maintained that the degree to which phonics is functional depends on the method by which phonics is taught, and these investigators sought to prove this by comparing the reading results of children taught by different phonic methods. However, once again there is not complete agreement on results obtained.

Section I of this Chapter will give a brief summary of the beginning of phonics and its history in the educational system of the United States of America. Little material could be found on the teaching of phonics in early Canadian history. However, it





is generally assumed that Canada has followed a step behind the United States in education, and many of the practices introduced in that country eventually reach Canada.

Section II proposes to set forth statements of various educators, that phonics to be of value must be functional.

Sections III, IV, and V will review studies conducted along lines similar to those outlined above.

In reading the related literature, the reader should be aware of the difference in the meaning of the terms, "phonics." and "phonetics." Phonics means the association of appropriate sound and symbol, whereas phonetics is generally defined as a science, involving the study of speech sounds that form the basis of our language. It belongs largely to the linguistic realm. Though the term "phonetic" is generally used especially in the older studies, "phonics" is the term generally meant.

The present writer in summarizing these studies will use the term of the particular author but with the above reservation in mind.

## I. THE HISTORY OF PHONICS IN THE UNITED STATES

It is a commonly held fallacy that phonics is a relatively new technique in the reading field. Few realize that the history of phonics dates back to the very early attempts by man to transcribe his thoughts. According to Huey (35), this stage was reached in Babylon about eight thousand years ago. Seven thousand





years ago, Egypt's system of writing was partially alphabetic; and in Crete, inscriptions have been unearthed that go back to the third millenium before the Christian era.

Mankind began his writing by drawing a picture of the object about which he wanted to convey some thought. Pictures however soon came to represent ideas and feelings of the most varied kind. In this latter stage, they were termed "ideographs." (35).

As the various spoken languages had been keeping pace in their development with the needs of the civilization in which they were used, there was further need of some sort of "graphs" which would represent to the eye the sounds of these spoken languages as sounds.

The alphabet came by degrees. There was no out and out invention of the forms or of their meaning. (35). In the first place very many of the simplified picture-characters had naturally come to suggest immediately the spoken names of the ideas which they signified. This name was often the same as another word of different meaning, as in the case of "sun" and "son," and the character for the former came to stand for the latter and was a true phonogram, or sound picture, a "graph" symbolizing the word-sound as such. Though very crude this was the beginning of our phonic system - the sound of symbols. From this the significant advance was made of representing a polysyllable word by a succession of characters, each representing the sound of one of



its syllables. Huey (35) quotes Taylor as saying that Prior Burton's name is sculptured in St. Saviour's Church as a cask with a thistle on it, burr-tun.

Signs were now used for word sounds independently of any reference to meanings. The direct suggestiveness of the picture-characters was lost in favor of their secondary suggestion of a name. There were now pure phonographs, or sound symbols.

With the development of syllabaries and alphabets came reading in the modern sense, and also methods of learning to read. Among the early people who used an alphabet, each letter was used for a definite purpose to represent a definite sound, and this made the letters of much greater significance than at present, and tended to the practice of learning to read by letters (35). The A-B-C method of learning to read became general among the Greeks and Romans and persisted in the Western World until the twentieth century.

The Greeks and the Romans in teaching the child his letters taught the combinations of letters into syllables and words, and then of words into sentences. Various devices were used at times for getting the pupils over the alphabet stage.

In Western Europe also there was extensive use of the alphabet method in teaching children to read. Beginning as early as 1450, the Horn Book, as it was called came to be more and more the means by which the English child learned his first use of





letters and words. It was used extensively in England down to the beginning of the nineteenth century and in American schools as well.

The alphabet method however had early modifications in Europe on the side of phonics. As early as in 1534, Icklesamer had a device of "placing the picture of an animal, its printed name, and the letter whose name was most like the animal's voice or cry, in parallel columns." (35). Against the picture of a dog for example was placed the growling 'r', against a bird, the twittering 'z' etc. Later A was associated with apple, and B with ball etc.

The Puritans brought with them to America an ABC Catechism, which was succeeded by the famous New England Primer about 1690, which itself was constructed around the alphabetic method and held sway in America for more than one hundred years.

Meanwhile attempts were being made by advocates of other methods for their introduction into the reading field, notably the word method. The beginning of the word method came with the publication of Comenius' "Orbis Pictus" in Nuremburg in 1657 and in 1658. Comenius' book however was little used as such a method of learning to read as he had intended.

Support for the word method also came from the Jansenists and from the primer of Gedike in 1791, which advised teaching words before letters as the natural order is from the whole to the parts, but none of these had any appreciable effect in changing current ABC practice until Jacotot (1770-1840) advocated the word method as part of his system and set forth clearly the arguments





for it.

Phonics proper, that is the sounds of letters to help children unlock the pronunciation of unfamiliar words, first came into American reading instruction as a patriotic rather than a pedagogic measure. Following the Revolutionary War patriots were greatly disturbed because of the diversity of dialects in different parts of the United States, so Noah Webster conceived the idea of developing a uniform national language by teaching all school children the sounds of the letters of the alphabet and how to combine these sounds in pronouncing words. Webster's Spelling Book published in 1783 soon displaced the few spellers previously introduced, and came to be used almost universally throughout the country.

From the time this Speller came into wide range about 1798 until about 1846, phonics was taught pretty generally according to Webster's ideas.

Worcester's Primer in 1828, seems to have been the first beginner's book in America to recognize any other than the alphabet method.

Bumstead, in the first books of his series of readers published in 1840-43, stood stoutly for the word method and urged that a scholar never be required to spell a word until he has first seen it in print. Horace Mann, too, advocated the word method for years and ridiculed the spelling method of beginning reading, as it was taught in the Webster's Spelling Book. Nevertheless the ABC method



and the reading by spelling went undisturbed by these protests.

However, by the middle of the nineteenth century a weakening of the alphabet method of teaching reading was becoming apparent. J. Russell Webb's declaration in 1846 that children could learn whole words from the beginning without first having memorized the names and sounds of letters, had an impact on the views of educators. At this time Webb published his primer called "The New Word Method" which by 1870 began to be adopted by teachers in various parts of the country and gradually grew into favor.

The phonic method was also making its appearance felt at this time, and was also an important factor in helping displace the alphabet method. The phonic method was tried in various parts of the country and met with great success for a time, notably in the "Pronouncing Orthography" system of Dr. Edwin Leigh, published in 1864 and patented four years later. In this system the letters were given various special forms to represent their different sounds, these forms being slight modifications of the ordinary form. Silent letters were printed, but in hair lines. This system was used in a series of readers by Leigh, and in several other series including McGuffey's which first appeared about the middle of the nineteenth century and met with considerable success. Leigh's phonic system however soon ran into difficulties. The "pronunciation print" was hard on the eyes, requiring an unnatural close inspection of each letter. It also caused difficulty for the printer, distracted from attention to thought getting in reading, and caused confusion in the





attempts to use two alphabets (35).

The sentence method was little used up to this time. It gained in popularity around 1885 and 1890, due largely to the experiments of Farnham in the schools of Binghamton, New York.

At the turn of the twentieth century the phonics method once more made a comeback and was popularized in such methods as Rebecca S. Pollard's "Synthetic Method of Reading and Spelling;" Professor Ward's "Rational Method;" and Emma K. Gordon's "Comprehensive Method." The latter two attempted to reconcile the word method and the phonic method.

Two other phonic methods were popularized in the early twentieth century. In 1907, the Aldine method devised by Spaulding and Bryce was published. This method employed a series of rhymes to develop a sight vocabulary and emphasized the final blend. A formally systematized phonic method published in 1912 was first prepared by James H. Fassett of Nashua, New Hampshire. This initial blend method in the Beacon Readers gave careful attention to the blending of consonants and the following vowel. (7. p. 378).

An analysis by Ducker (20) of eighteen well-known widely-used reading manuals published between the years 1900 and 1918 led her to conclude that during that period, "phonics was widespread as an aid in building independence in word recognition. Only a few systems gave no preliminary training before beginning formal phonic work." (20, p. 89). This was the period in which phonics really had its hey-day.



In the Teachers College Record of March 1925, certain facts were published concerning the use at that time of phonic methods in twenty-one of the most widely published systems for the teaching of reading during the first year.(26). It was found that every system included a course in the training of phonetics. In seventeen of the systems phonetic cards and other materials were provided; in the remaining four, instructions were given for the preparation of such materials. In seventeen of the systems, phonic or phonetic work was begun within the first two weeks and in none was it begun later than the sixth week of school. It was concluded by the authors of the Twenty-Sixth Yearbook of the National Society for the Study of Education that:

phonetic training was in 1926 one of the major concerns of the authors of primary reading courses, and as a consequence, the development of phonetic skill probably became a major concern of primary teachers. (26. p. 33).

They went on to say that:

apparently no other single device has been so widely adopted by American teachers. The phonetic method is in fact, the only well known procedure for developing habits of word study and perception and independent skill in the recognition of unfamiliar words. (26. p. 33).

In the late 1920's however a reaction was being felt against the wide popularity of phonic methods. This was due to a number of reasons. The results of the Army Alpha tests administered to servicemen in World War I showed a need for more emphasis on silent reading. The results revealed that overwhelming numbers of young





Americans had inferior silent reading habits. Oral word calling methods, unsuitably difficult literary materials, and mechanical drills were some of the factors blamed for the poor results.

In the 1920's also, the influence of Gestalt psychology reached educational circles. Its emphasis on the importance of "wholeness" in the learning process tended to discredit still further the phonic method of teaching reading.

The movement away from formal phonic methods may have been hastened also by a series of studies by Gates (26) setting forth rather clearly the value of the "intrinsic" method. Gates described the materials of the "intrinsic method" as,

a number of exercises arranged wholly to stimulate reading, to secure the thought; and a number arranged not only to emphasize comprehension, but also to demand accurate discrimination of words and phrases. (26. p. 51).

These developments together with growing interest in less formal and less structured teaching-learning situations, combined to put phonics somewhere in the background as a method of teaching reading. A few writers have said that by 1930 it was dispensed with, but this conclusion seems to have been based more on a look at some of the textbooks of the time than on actual classroom observation.

Nevertheless in the 1930's and 1940's, it seemed as if the phonics era was over.

Wilson and others (65), who conducted a study between the years 1934-38 reported that in most classrooms in which they worked





there was little or no formal, isolated drill on letters or phonic combinations. They maintained teachers gave no attention to the sounds and forms of letters.

Lichtenstein (37) in a study in 1940 said that:

one reason why poor readers are found in alarming numbers in English speaking countries is probably orthography. Another reason that might bear investigation is the difficulty of associating the sounds of letters with their names. (37. p. 23).

He further stated that there was little learning of the alphabet in schools at that time -- there was no such instruction in schools tested by him.

Tiffin and McKinnis (60) in a study also done in 1940, were of the same trend of thought. They felt that the pendulum may have swung too far and that teachers were neglecting phonics in the reading program.

However, in the late 1940's the pendulum began to swing back very slowly. Harrington and Durrell (33) reported in 1950 that "phonics - the attachment of sounds to letters and blends was now coming again into favor." (33, p. 375).

In 1955 came the publication of Flesch's book (25) Why Johnny Can't Read, which greatly quickened the pace towards the "return to phonics movement." The reason for the excitement was not that he offered a new approach to the teaching of reading, but that he voiced in concrete terms a vaguely but widely experienced dissatisfaction with current instruction in reading in the elementary school (10).



It was Flesch's contention that Johnny failed to read because he was taught by a system which focused attention primarily upon the printed forms of the words to the neglect of the sounds of the letters. To remedy this neglect, Flesch advocated a return to a method known as "phonics" -- a system of teaching separate letters as found in the regular spelling of words. Dr. Flesch wrote, "Teach the child what each letter stands for and he can read." (25, p. 6).

Following Why Johnny Can't Read came much counter-criticism, and more controversy.

Let's Read, by Bloomfield and Barnhart (10) was published in 1961. In this book the phonic approach was criticized for two reasons:

1. It was maintained that such methods as phonics were confusing with speech. The child was taught sounds in a manner as if he were just beginning to speak. Bloomfield expressed his opinion thus:

In all normal cases the child has learned to speak before we are called upon to teach him to read, and our task is merely to give him the habit of uttering the familiar speech sounds at the sight of the written or printed letters. To ignore this distinction as the phonic methods do, is to befuddle the whole process. (10, p. 28).

2. The second error of the phonic method according to Bloomfield is that of isolating the speech sounds.

Learning to pronounce words in isolation is something in the nature of a stunt and has nothing to do with learning to read. We must not complicate





our task by making unusual demands on the child's power of pronouncing. In this absurdity lies the greatest fault of the so-called phonic method. (10, p. 28).

Bloomfield felt that new words should be presented according to their form; that is regular forms should be presented first, irregular forms only later. By getting all the associated facts together, the child's power to recognize words in his reading is greatly facilitated.

Today Durkin (21) asks the question, present in the minds of many educators, "Where do we stand now in regard to phonics?" (21, p. 10). She proceeds to answer:

"To be or not to be" is no longer the focus of the phonic debate. Today the value of phonics for a reading program is generally recognized if and when it is given an appropriate role to play. What is its appropriate role is the current question of debate.

Like most debates, this current one basically has two sides. One side sees phonics as the method of teaching reading. The other side sees phonics as providing one possible kind of help in identifying new and unknown words. (21, p. 10).

### Summary

Neither "phonics as a technique in the teaching of reading," nor the controversy over its value as such, is new in educational circles. Both are as old as the beginning of reading.

Today, however, it is generally agreed that the controversy over the value of phonics has been settled. Most educators today agree that phonics is of value as a technique to help children unlock the pronunciation of unfamiliar words.



Nevertheless questions still exist about phonics. It is ascertained that phonics to be of value must be functional. Consequently the question today is whether phonics is functional in reading, and if not, how can it be made functional.

## II. RELATED LITERATURE OF READING AUTHORITIES ON THE DEGREE TO WHICH PHONICS IS FUNCTIONAL

That the goal of phonics should be to provide a valuable aid to help make readers independent in the sounding out of regular but new words which they meet, is readily agreed upon by most writers in the reading field.

In a publication by the Reading Workshop of the American Book Company (69), this goal was thus summarized:

Now comes the real test of phonics -- can your pupils apply their phonic skills to an unknown word? If your children know the phonogram m in my, and an in can, are they able to blend them to make the word man? If your pupils can identify man, does it make sense in the sentence? The application of phonic skills and meaning clues, automatically and surely is the goal of phonics instruction. (69, p.8).

Durrell (22) considers there should be "direct instruction in the use of phonics to solve new words" (22, p. 245), and lists a number of exercises designed for this purpose.

Moura and Smith (43) also believe that many types of exercises could be devised to develop the skill of transferring phonic knowledge. In the Introduction to a handbook (43) which they published they maintained the handbook would "help alleviate problems while teaching





children who have difficulty in reading." (43, p.5).

Dolch (19) says that phonics "should appeal to the children as a practical thing they can use, and they should learn how to use it." (19, p. 277).

Cordts (16) believes that for phonics to be practical it must be properly taught. She states:

If your pupils of average ability have not achieved independence in reading by the time they have reached the fourth grade, it is time to invest not in bigger and better remedial classes but in a more efficient phonics program (16, p. 412).

She continues:

When phonics functions in reading, children learn to help themselves. There is meaning in what they are doing, and learning is fun. They will then keep on forging ahead from level to level, gaining in power as they go and nothing can stop them. Thus independence in reading is achieved. (16, p. 412).

Finally Adams, Gray, and Reese (2) commenting on the status of phonics in 1949, said:

In the better organized and more defensible programs of today, the monotonous drills on individual sounds practiced in isolation are gone. The child now receives guidance in word analysis in a functional setting. (2, p. 321).

They go on to say that in such programs individual differences are respected, the child is not forced to memorize rules but makes his own workable generalizations as the result of meaningful experience with words in contextual setting, and that "natural pupil initiative and interest are utilized instead of being stimulated artificially by tricks and devices." (2, p. 321).





It would be wishful thinking to suppose that this state in the teaching of phonics has been reached in most reading programs of the present day. There are still too many instances where phonics is not taught in a "functional setting" and is not helping readers become independent in attacking new words.

Thus more research is needed to help determine to what degree phonics is functional at the present time. Jenkins stated that "phonetic training has some values," and that "controlled experiments will make these values clear." (36, p. 86).

### III. STUDIES SHOWING THE RELATIONSHIP OF PHONICS SCORES AND READING SCORES

Tiffin and McKinnis (60), and Rudisill (50) in complementary but separate studies found a significant correlation between children's scores on a phonics test and corresponding scores on a reading test.

Tiffin and McKinnis worked with pupils from Grades Four to Eight. They found the correlations between the pupil's phonic knowledge (measured on the Rogers One Hundred Nonsense Word Phonic Test), and the results of the Iowa Silent Reading Comprehension Test, Iowa Silent Reading Speed Test, and the New Stanford Reading Test, Form V, to be .66, .55 and .70, respectively. They concluded "that a program of reading instruction which does not by direct or indirect means yield a mastery of the principles of phonics, is not accomplishing its full purpose." (60, p. 192).

A phonics test very similar to the one used in the Tiffin and



McKinnis study, was used by Rudisill in her study. She found correlations of .71 between reading and phonic knowledge, and of .69 between spelling and phonic knowledge. This was higher than correlations with mental age, as measured by the Otis Intelligence Test.

A study conducted by Templin (59) with fourth graders, also sought to determine what, if any, relationship existed between phonic knowledge and reading and spelling at this grade level. She also wished to see if any differences existed in the phonic knowledge of good and poor readers. The phonics test used in this study consisted of both real and nonsense words.

The results of this study showed that there was a high correlation between phonic knowledge, spelling, and reading. The correlation, however, was higher for phonics and spelling. A comparison of the scores of good and poor readers indicated that the better readers received the better scores on all tests, with the differences significant on two of the four sections of the phonics test. She found that the poor readers applied their phonic knowledge less well than the good readers in the unfamiliar test situation while the difference was not significant on the sections containing familiar words.

Mulder and Curtin (44), and Olsen (47) in separate studies, also found positive correlations between scores on phonic and reading tests. However, the techniques used in each of the above studies were somewhat different.







The study of Mulder and Curtin tested children on their ability to blend sounds to make a word. A tape recording was made of seventy-eight one syllable nouns, for example nose. These were said with a second duration between phonic elements, for example, n-ō-z. Each pupil had three pictures, the name of each had a common consonant or vowel. The pupils had to mark the picture denoted by the sound on the tape. The results of this test were correlated with the results of the Iowa Every Pupil's Test of Basic Skills, Battery A. The authors of this study concluded that inability to identify the stimulus words was a result either of failure to discriminate between speech sounds or of ignorance of sound letter associations. The authors maintained that both of these weaknesses are amenable to improvement through instruction.

Olsen, in his study, tested the pupils on their knowledge of sounds, and on their ability to apply phonics. This latter ability was tested by giving the pupils a list of twenty-five items. In the first seventeen, the children were told the first word, and the rest were like it except for the beginning consonant. In the last eight only the final consonant was different.

Olsen found that although there was a widespread range of ability in the application of phonics, the average child was able to solve ten new words through a single consonant change. There was a correlation of .70 between the results of these phonics tests and the results of an oral reading test, which comprised all of the words taught in the Scott Foresman series up through the primer level and



including some words above this level.

### Summary

The forementioned studies have all shown a positive and significant correlation to exist between scores on a phonics test and corresponding scores on a reading test.

#### IV. STUDIES SHOWING THE RELATIONSHIP OF PHONICS AND READING ACHIEVEMENT WHEN A PHONICS METHOD IS COMPARED WITH A NON-PHONIC METHOD

Several writers including such authors as Valentine (61), Winch (66), Bedell (5), Durrell (23), and Bloomer (9) attempted to show that phonics was functional and led to independence in reading, by showing its superiority over other methods of teaching reading.

Valentine (61) as early as 1913, from the results of an experiment comparing a "phonic" and a "look-and-say" method, concluded that:

Children taught by the phonic method do better than those taught by the "Look-and-Say" method, both in reading words previously seen and previously unseen (61, p. 356).

However, he also concluded from the study that there seemed to be evidence that for the very dull children, the "look-and-say" method was most efficient.

A similar study conducted by Tate (58) a quarter of a century after, showed that:

Phonics instruction and drill is far superior to the "look-and-say" method in developing ability to recognize words. (58, p. 762).





Like Valentine, he too found some merit for the "look-and-say" method, for he stated that:

....the "look-and-say" method is superior to phonic instruction in developing the ability to comprehend paragraphs of directions. (58, p. 762).

Agnew (3) and Russell(52) in complementary but separate studies arrived at conclusions supporting those of the above mentioned investigators. Their conclusions show that the value of phonics lies, not in improving comprehension but in improving "word recognition and accuracy in reading." (52, p. 278).

Some value for the phonic method over a non-phonic method was found in a study by Sexton and Herron. (55) They concluded however, that phonics is of little value in the early part of Grade One, and only begins to function effectively in Grade Two.

Studies which attempted to look at phonic knowledge of beginning readers as a predictor of success in reading were conducted by Durrell (23), Wilson (65), and Harrington and Durrell (33).

Durrell (23), after administering reading achievement tests during the first year of reading of the children used in his study, concluded that:

1. Most reading difficulties can be prevented by an instructional program which provides early instruction in letter names and sounds, followed by applied phonics and accompanied by meaningful practice in sight vocabulary and aids to attentive silent reading.
2. Early instruction in letter names and sounds produce a higher June achievement than does instruction given incidentally during the year. (23, p.5).





Wilson's conclusions were very similar to those of Durrell, while Harrington and Durrell concluded from their study that phonic instruction had a higher relation to reading achievement than either visual or auditory perception, or mental age.

The relationship of phonics to reading achievement is also evident from the results of studies conducted by Buswell (13), Beltramo (6), and Mills (41). These investigators devised methods especially for their studies and compared the reading achievement of pupils taught by such methods with the results of pupils taught by some other method.

Buswell devised a non-oral method of teaching reading in Grades One and Two. He compared the proficiency of these readers with the proficiency of readers taught by a phonics method. The results slightly favored the non-oral group. The differences however, were not significant.

Beltramo formulated an alphabetic approach for helping first grade children develop independent word attack skills. When the reading scores of this group were compared with the reading scores of a control group, it was found that the experimental group made higher scores. However the difference between groups was not statistically significant.

Mills attempted to discover which of four approaches to beginning reading was most successful. These four approaches - - phonic (auditory), visual, kinesthetic, and a combination of these



were tried with pupils in Grades One to Four who were divided into three groups according to intelligence quotient range. He concluded that no one method was best for all children. For children of low intelligence the phonic method used was least effective. For the average, phonic instruction showed no statistical significant difference in either direction, and it seemed that children of high intelligence learned best by all methods.

### Summary

It is difficult to draw definite conclusions from the above mentioned research summaries. It does seem however, that instruction in phonics does lead to an improvement in word recognition. Pupils of low intelligence do not seem to be helped as much by a phonic method, whereas, those of high intelligence tend to do well by any method. Some of these studies have also found that beginning readers who have a knowledge of sounds of letters are likely to be successful in reading.

### V. STUDIES SHOWING THAT PHONICS MAY BE FUNCTIONAL DEPENDING ON THE PARTICULAR METHOD BY WHICH PUPILS WERE TAUGHT

Gates (26) has long been a critic of the fact that phonic knowledge is often not being utilized by children when they are reading stories or other materials. His views are summarized in the following passage:

~~It is a well known fact that dependence on the~~  
transfer of subtle skills is risky even in the case







of experienced and more mature pupils. In all likelihood, such dependence will be the more risky among beginners. Indeed, recent studies of related problems such as use of flash cards in reading and various supplementary devices in writing by young pupils have in the main shown limitations in the uses of such devices. (26, pp. 39-40).

Gates thought a greater transfer would occur if the pupil received his training in recognizing common word elements, in seeing significant similarities and differences, in utilizing these clues as a means toward perceiving unfamiliar words, not during a special period with special materials and drills, but during the process of normal reading work.

In the two studies which he conducted in 1923-24, and in 1925-26, Gates compared the performance of a group taught for transfer, with a group who were taught phonics in a period separate from reading.

It was found from the 1923-24 study that some members of the phonetic group rarely or never utilized the skills acquired in their special training. There were instances in which the skills transferred to the task of dealing with unconnected materials. Similar results accrued from the 1925-26 study and in a summary of both studies, Gates remarked:

In general efficiency in silent reading comprehension the non-phonetic pupils demonstrated markedly superior attainments. (26, p. 225).

Gates and Russell (29) conducted a similar study at a later date, which produced conclusions similar to those stated above. The results of this study also showed that the average and dull pupils



profited most from a phonics program directed towards transfer. It did not seem to matter much by which method bright pupils were taught.

McDowell (40), using an experimental situation similar to that of the studies referred to above, also found results favoring the pupils taught by an informal phonic method. He concluded:

The group following the "diocesan program"\* reads faster, understands words, comprehends paragraphs, uses the index, and in general reads better than the phonetic group. The latter however, is better at alphabetizing. On Directed Reading and Sentence Meaning, the groups are about the same. (40, p.366).

McDowell felt that the phonetic method, even under ideal conditions was not accomplishing the results it was said to accomplish.

An experiment conducted by Bear (4) sought to compare the results in reading achievement of a group taught phonics according to the plans and instructions in the teacher's guide for the basal reader, with a group taught phonics by a phonic reader. Bear matched the pupils of his study not only on chronological age, mental age, intelligence quotient, reading readiness, social status, school attendance, and Kindergarten training, but also on their vision, and hearing difficulties.

Bear's findings were unlike those of the previous investigations for they were more favorable to the synthetic method of teaching phonics. He found that pupils with intelligence quotients

\*an informal phonic method.





that ranged from 101-120 benefited more from the synthetic method than pupils at the other intelligence levels. The pupils whose intelligence quotient was below 101 achieved higher results with the synthetic method than with the analytic method. However, the results were not as significant as for the middle group. The evidence indicated little difference in performance of the two groups whose intelligence quotients were above 120.

#### SUMMARY

Phonics to be of value should serve children as an aid in unlocking the pronunciation of unfamiliar words they meet in various reading assignments. This is the opinion of most educators today. However, the fact that reading authorities say that phonics can serve as a valuable technique in work attack does not necessarily mean that this is so. Many experiments have been conducted to prove or disprove the value of phonics. Nevertheless the conclusions drawn from these studies are not always consistent, and data may be found favoring both phonic and non-phonic approaches to reading. In interpreting the results of such studies, the reader should be aware of a number of points.

In the studies reviewed in Section III of this chapter results on a phonics test were correlated with results on standardized reading tests. When high correlations resulted it was assumed that phonic knowledge was the factor responsible for this





relationship. However both the phonics test and the reading tests were dealt with in terms of composite scores. There was no attempt to break either test down into various phonic principles, and look at the correlation of these principles, separately.

The studies summarized in Section IV used an experimental situation in which the reading achievement of pupils taught by a phonic method, and of pupils taught by non-phonetic methods were compared. The conclusions did not always favor those who received phonic training. The methods used in these particular studies were not always clearly defined. In most cases it was assumed that a group of pupils had no phonics training. No phonics test was administered to see if this were so. The investigators conducting these studies did not always test for the same reading skill. Some tested for word recognition while others tested for comprehension (a complex term in itself). The findings of some of these studies were based on silent reading tests, while the findings of others were based on the results of oral reading tests.

The criticisms stated above may also apply to the studies reviewed in Section V. The studies summarized in this section sought to show that children taught by an informal phonic method, produced a greater transfer of this phonic knowledge to reading tasks, than did pupils who were taught by a formal phonics program. Too often the investigators assumed there were clear cut divisions between various programs. Also in these studies there was no



phonics test given as a check on the amount of phonic knowledge possessed by the various groups.

No study found by the present writer, looked specifically at what phonic principles were known by pupils of two grades, representing two divisions of the typical Canadian school system. No study found by the writer, used reading tests, comprising words which when broken down into phonic principles, yielded a one-to-one correspondence with the principles on the phonics test. The investigator of the present study hopes to determine to what degree phonics is functional for children in Grade Three and Grade Seven, by correlating their results on sections of a phonics test with their results on corresponding sections of a reading test. It is also hoped that ensuing results provide additional evidence regarding which phonic principles are being utilized by these pupils in attacking words in an oral reading situation.





## CHAPTER III

### THE EXPERIMENTAL DESIGN

#### I. INTRODUCTION

The data on the knowledge of phonics of Grade Three and Grade Seven pupils, from which the degree of transfer to an actual reading situation was ascertained by statistical methods, were gathered from pupils of the above mentioned grades in an Edmonton Public School in May, 1965. This chapter explains the choice of grades, and describes the experimental instruments, the procedure followed in the collection of the data, and the nature and selection of the sample.

#### II. SAMPLING PROCEDURE

The sample selected for this study was chosen from a Grade Three and a Grade Seven population.

A sample from Grade Three was chosen because at this grade level pupils have just completed the study of most of the phonic principles outlined in the basal readers. It was accordingly assumed that pupils at this grade level are still conscious of the application of this knowledge in attacking unfamiliar words.

A Grade Seven sample was chosen because at this grade level pupils are usually beyond the stage of direct teaching of phonic principles. They ought to be more independent in their



reading than pupils at previous grade levels. This study thus attempted to find out to what degree a knowledge of phonics is maintained by pupils at this grade level, and to what extent they are applying such knowledge to an actual reading situation.

The selection of pupils for this study was made by means of stratified random sampling. The sampling was random in the sense that the school used in this study was randomly assigned.

Stratification of this sampling was made in the following manner. In the Edmonton Public School assigned for use in this study, there was a total of ninety-two Grade Three pupils, and one hundred twenty-six Grade Seven pupils on whom complete data (results of intelligence tests, standardized reading achievement test scores, and chronological age) could be obtained.

The Grade Three pupils had been given the Gates Advanced Primary Reading Test, Paragraph Reading, Form 2, and the Gates Advanced Primary Reading Test, Word Recognition, Form 3, in June, 1964. They had received the Detroit Advanced First Grade Intelligence Test, Form A, in March 1963.

Since the purpose of this study was to look at the application of phonic principles by high, average, and low reading achievers, the pupils were ranked in a descending order on the basis of their scores on the Gates Advanced Primary Reading, Word Recognition, Form 3. The scores of this test rather than those of the Gates Advanced Primary Reading, Paragraph Reading, were chosen as the basis of selection, because the study itself was





concerned mainly with word recognition and it was felt that the scores of the former test would give a better indication of high, average, and low readers in this area.

The standardized reading test received by the Grade Seven pupils was the Unit Scale Reading Test, Division 3, Form B, administered in June, 1964. The Laycock Mental Abilities Test was administered to these pupils in November, 1962.

The scores on the reading tests for each grade were roughly divided into thirds. Tables I and II show the arrangement of pupils from which the sample was drawn.

After testing, it was found that a girl from the average group of Grade Three readers suffered a slight eye defect, and consequently the results of her tests were not used in this study. A substitute drawn randomly from the same group was used instead.

The remaining pupils were designated by their teachers as being free from sight defects, and speech impediments including foreign language backgrounds.

### III. TEST INSTRUMENTS

#### Phonics Test

The phonic test used in this study was based on the Boyd Test of Phonetic Skills. This is a diagnostic test and consists of fourteen sections, the first thirteen of which measure fourteen phonic principles. The last section, "Selection and Application" attempts to test the child's ability to apply his phonic knowledge.





TABLE I

ARRANGEMENT OF READING ACHIEVEMENT SCORES AND PUPILS  
FROM WHICH GRADE THREE SAMPLE WAS DRAWN

	Range of Scores on Reading Test <sup>1</sup>	No. of Pupils	No. of Boys	No. of Girls	No. of Each Sex Chosen
Upper Third	6.2 - 5.0	26	16	10	6
Middle Third	4.9 - 4.3	34	15	19	6
Lower Third	4.2 - 2.3	32	22	10	6
TOTALS	6.2 - 2.3	92	54	39	18

1. Gates Advanced Primary Reading Test, Word  
Recognition.



TABLE II

ARRANGEMENTS OF READING ACHIEVEMENT SCORES AND PUPILS  
FROM WHICH GRADE SEVEN SAMPLE WAS DRAWN

	Range of Scores on Reading Test <sup>2</sup>	No. of Pupils	No. of Boys	No. of Girls	No. of Each Sex Chosen
Upper Third	9.5 - 9.0	37	22	15	6
Middle Third	8.9 - 7.0	52	25	27	6
Lower Third	6.9 - 4.4	37	23	14	6
TOTALS	9.5 - 4.4	126	70	56	18

2. Unit Scale Reading Test, Division 3, Form B





This section is not recommended by the author of that test, for Grades Two and Three.

There are a number of weaknesses inherent in this test. Though accent is considered to be important in the application of phonic principles, it is not tested. The number of items testing particular principles is small, for example, the number of items testing a knowledge of 'silent letters' is three. The author of this test did not distinguish sufficiently between various phonic principles, such as 'digraphs' and 'diphthongs'. Finally, the pronunciation of some items is arbitrary in the sense that more than one pronunciation is accepted, for example, pronunciations similar to the words 'pal' and 'all' are accepted for the nonsense word 'snal'.

Some alterations were made in this test. The section, "Selection and Application" was omitted, and in its place was substituted a section on "Syllabication" and a section on "Accent." The remaining principles were checked against the phonic rules in the Guidebooks for the Curriculum Foundation Series of Basal Readers, for Grades One to Three, to make sure such principles would normally be taught by the end of the latter grade. Consequently two items proposing to measure vowel digraphs were omitted. A few other changes were made after the "pilot study." These are listed in Appendix B. The completed test consisted of thirteen sections, which tested sixteen different phonic principles, including syllabication and accent.





It may be argued that syllabication and accent are not phonic principles. The rationale for the inclusion of such sections in the Phonics Test used in this study may be found in the writings of Durkin (21), who, with respect to syllabication and phonics says:

Phonetic analysis of a word begins with the division of that word into syllables. Once the word is correctly divided, phonetic generalizations can then be applied to each syllable. Following this, letter sounds within a syllable are blended and, in turn, the syllables themselves are joined to form the total word. The syllable thus functions as the unit of pronunciation. Because of this, some knowledge about syllabication is a prerequisite to advanced skill in phonics. (21, p. 70)

Durkin continues:

When unfamiliar words are spoken, their syllables can be identified orally. In the written version of unfamiliar words, however, syllables have to be identified visually; that is through the use of visual cues. In this case the visual cues are particular letter arrangements. Consequently like most of the generalizations in phonics, those concerned with syllabication also focus on the arrangement of letters within a word. (21, p. 72)

In Appendix A of this study may be found a list of the syllabication principles tested in this study.

With regard to accent, the rationale for its inclusion on a phonics test is also provided by Durkin (21). She says:

Spoken language, if listened to attentively shows periodic stresses....

Locating the syllables in a word that get this special stress is part of the job involved in arriving at the correct pronunciation of a word. Consequently some discussion about accented syllables is pertinent in any complete discussion of phonics and word analysis. (21, p. 72)





For a list of the accent generalizations tested the reader is referred to Appendix A. A complete form of the Phonics Test may be found in Appendix B.

Table III shows the various sections of the Phonics Test, and the number of principles tested in each section.

TABLE III

## PRINCIPLES TESTED ON PHONICS TEST

1. Consonant Blends	9	9. Controller	8
2. Consonant digraphs	9	10. Silent letter	3
3. Vowel beginnings	5	11. Open syllable	16
4. Hard C-G	2	12. Closed syllable	46
5. Soft C-G	3	13. Accent	25
6. Final E	5	14. Initial consonant	15
7. Vowel digraph	11	15. Final consonant	15
8. Phonogram	9	16. Syllabication	25
		Total . . . . .	206

Reading Tests

Two stories were constructed for each of the two grades involved in this study. Since phonic principles corresponding to those on the Phonics Test were to be analysed within the stories, an attempt was made to represent each of the sixteen phonic



principles by at least five examples. This proved successful for all principles except "Silent Letters" in the Grade Three Reading Test. Here there was a representation of two examples.

Tables IV and V show the total sample of each principle tested in the Reading Tests, for Grade Three and Grade Seven respectively. It may be noted that these principles are in a one to one correspondence with those of the Phonics Test.

TABLE IV

## PRINCIPLES TESTED IN GRADE THREE READING TEST

Principle	Story I	Story II	Total
1. Consonant blends	14	5	19
2. Consonant digraphs	6	5	11
3. Vowel beginnings	11	6	17
4. Hard C-G	7	6	13
5. Soft C-G	6	1	7
6. Final E	9	2	11
7. Vowel digraph	4	7	11
8. Phonogram	13	10	23
9. Controller	13	6	19
10. Silent letter	1	1	2
11. Open syllable	8	7	15
12. Closed syllable	40	17	57
13. Accent	23	18	41
14. Initial consonant	23	9	32
15. Final consonant	26	13	39
16. Syllabication	45	25	70
Total	249	138	387





TABLE V

## PRINCIPLES TESTED IN GRADE SEVEN READING TEST

Principle	Story I	Story II	Total
1. Consonant blends	14	10	24
2. Consonant digraphs	8	4	12
3. Vowel beginnings	4	7	11
4. Hard C-G	6	13	19
5. Soft C-G	4	2	6
6. Final E	8	10	18
7. Vowel digraph	7	1	8
8. Phonogram	12	14	26
9. Controller	13	15	28
10. Silent letter	3	3	6
11. Open syllable	12	15	27
12. Closed syllable	28	24	52
13. Accent	33	33	66
14. Initial consonant	26	13	39
15. Final consonant	21	14	35
16. Syllabication	41	36	77
Total	240	214	454

To avoid the possibility that the words within the stories might be recognized by the pupils as "sight words," the following precautions were taken.

1. Words commonly taught as sight words were not selected for inclusion within the stories. This would exclude all words found in Dolch's Basic Word List for Primary Grades, and words designated as sight words within the Manuals for the Curriculum Foundation Series of Basal Readers.



2. Any word chosen from the Lorge-Thorndike List of Word Frequencies was beyond the 4000 frequency for Grade Three, and beyond the 6000 frequency for Grade Seven.
3. An attempt was made to construct the stories in such a way that the content surrounding the particular words would not provide clues for the recognition of the words. An attempt was made to choose words which conformed to phonic principles and which could be sounded out by pupils who knew and used these principles.

#### Pilot Study

A "pilot study" for the purpose of testing the materials used in this project was conducted in an Edmonton Public School (Grade Three), and in an Edmonton Separate School (Grade Seven), in March, and May, 1965.

As a result of this study, a number of changes were made in the items of the Phonics Test and of the Reading Tests. These changes were necessary either because the pupils were already familiar with such words as sight words, or because such words were found not to conform to phonic principles.

The reader is referred to Appendices B, C, and D, respectively for the completed forms of the Phonics and Reading Tests, and a list of the changes that were made as a result of the pilot study.





#### IV. DATA COLLECTION

Both the Phonics and the Reading Tests were administered individually by the investigator.

The words of the Phonics Test were typed in primer type on three by five cards. The stories were typed in ordinary type print on eight by eleven inch stationery and each story was enclosed in a separate folder.

The "Directions for Administration" of both tests are listed in Appendix H. The "Directions for Administration" of the Phonics Test were the same as those printed on the Boyd Test of Phonetic Skills with the following exception. The last two sections of the test (Syllabication and Accent) were not marked at the time of testing. The responses to these sections were taped, and transcribed and marked later.

Every effort was made to establish good rapport with the child. A discussion of the tape recorder and its purpose was undertaken with any child, who, when asked, stated he had not had any previous experience with this type of machine. Each child was extremely cooperative in the test situation.

The average testing time (Phonics and Stories) was about twenty-five minutes for a Grade Three pupil, and about fifteen minutes for a Grade Seven pupil.



## V. SCORING THE TESTS

All tests were scored by the examiner. It was then necessary to determine the reliability of this scoring.

### Interscorer Reliability

During the "pilot study," the complete test of each child was taped. Sections IA to IIC inclusive, on the Phonics Test, for a sample of three pupils were marked by the examiner and by another person for reliability. The reliability coefficient for the resulting scores was .995. It was on this basis that the decision was made to score these sections directly on the recording sheets during the project itself.

For the remaining two sections (Sections III and IV) of the Phonics Test, and for the Reading Tests, the rules for scoring as stated in Appendix J, were followed by another person in addition to the examiner, for a sampling of three pupils from each grade, with one pupil each being drawn randomly from the groups of high, average, and low reading achievers. The reliability coefficients found are shown in the following table.

TABLE VI

INTERSCORER RELIABILITY COEFFICIENTS FOR PHONICS TEST  
(SECTIONS III - IV) AND READING TESTS

Phonics Test	.988
Reading Test (Grade 3)	.999
Reading Test (Grade 7)	.999





### Directions for Scoring

The "Directions for Scoring" the Phonics Test were similar to those printed on the Boyd Test of Phonetic Skills. However since changes had been made in this test, extra rules had to be drawn up for scoring. The complete set of rules used in scoring the Phonics Test may be found in Appendix J. In this Appendix, also may be found the rules observed in scoring the Reading Tests.

The results of each of these tests yielded a positive score (i.e., the number right) for each child.

All attempts were made to avoid duplication in scoring the various phonic principles. For example, a decision had to be made whether a word beginning with a "c" would be scored as an "initial consonant" or as a "hard or soft c" but not as both. Rules were drawn up by the investigator to avoid duplication in scoring. These rules appear in Appendix J.

Since the purpose of this study was to determine if pupils were using phonic principles in sounding out unfamiliar words, the procedure of accepting diverse pronunciations for a particular symbol or symbols, as listed on the Boyd Test of Phonetic Skills was followed. This applied particularly to 'digraphs' which have various speech sounds associated with them. If the pupil used an accepted pronunciation, it was considered correct.

Finally some words within the stories did not wholly conform to phonic principles. To avoid unduly penalizing a child, such principles were omitted when scoring the tests. For





a list of these words with principles not scored, the reader is referred to Appendix J, Part IV.

### Error Score

It was necessary to calculate on "Error Score" for each child. This applied to the total Reading Test, but only to the "Accent Section" of the Phonics Test. With reference to the "Accent Section," very often a child pronounced an item incorrectly, yet he accented the resulting pronunciation according to accent rules. For example, the nonsense word, "capation" might have been pronounced "capatation," and correctly accented. In this case the "Error Score" would be classified as one of "addition." The other types of error classified were, omission, substitution, and syllabication. The latter type of error should not be confused with the section on syllabication principles, on the Phonics Test. A syllabication error indicates that a child syllabicated the particular nonsense word of the "Accent Section" incorrectly, yet he accented the resulting pronunciation correctly.

The four types of error classified on the Reading Test were, omission, substitution, addition, and exaggeration. These were calculated when a child got the phonics principle imbedded in a word correct, yet he did not get the pronunciation of the word completely correct. For example, the word "impede" might have been pronounced as "impete." Thus the child pronounced correctly the "vowel beginning" and the "final E" principles. However, he made one error in the pronunciation of the word,





which in this case would be classified under the heading of "substitution."

It was not necessary to record syllabication errors here, as these were already marked for the words of the stories in the section on "syllabication." An "exaggeration" type error resulted when the pronunciation of a word was excessively drawn out.

It must be remembered that the "error score" on the Reading Tests, was calculated only for those words in which all the phonic principles involved were correct, yet the pronunciation of the words was not wholly correct. No attempt was made to analyse the type of error made in all words mispronounced for in most cases, the type of error made was subsumed in the type of phonic principle mispronounced.

### Validity of the Tests

The very nature of the tests themselves exemplifies their validity. These tests proposed to test children on a knowledge of sixteen phonic principles (including syllabication and accent). Thus the Phonics Test was divided into sections designed to test these particular principles.\*

Each word of the Reading Tests was analysed for each of the same sixteen phonic principles. The words chosen for the Reading Tests were checked against the Thorndike Barnhart Advanced

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\*See Table III, page 46, for the principles tested.



Junior Dictionary, or against the Webster's Third International Dictionary, for syllabication and accent. Appendix E contains a list of all words used, showing the division into syllables, and the placement of accent.

### Reliability of the Tests

The Kuder Richardson "formula 21" was used to estimate the reliability of the tests used in this study.

The resulting reliability coefficients for the Grade Three Reading Test, the Grade Seven Reading Test, and the Phonics Test were .983, .954, and .917, respectively.

## VI. TREATMENT OF THE DATA

A positive score (i.e., the number of items right) was calculated for each of the sixteen phonic principles for each pupil.

The scores were arranged in ten frequency distributions for each grade. These included a distribution for the grade as a whole (thirty-six pupils); one for each of the sub-groups, high, average, and low achievers in reading (twelve pupils per group); and one for each of the sub-groups, high, average, and low achievers in reading divided according to sex (six pupils per group).

The data obtained were processed at the Computing Science Department at the University of Alberta. The Pearson product-





moment formula was used to find correlations between the scores made on each section of the Phonics Test, and the scores on the corresponding section of the Reading Test.

The conventional "t" test was used to calculate the differences between the means on the Phonics Test for the Grade Three and the Grade Seven pupils. The one and five per cent levels were accepted as being significant.

In the following chapter these data are arranged in tabular form, and are analysed and explained.



## CHAPTER IV

### ANALYSIS OF DATA AND INTERPRETATION OF RESULTS

The data obtained from testing thirty-six Grade Three and thirty-six Grade Seven children at the end of the 1964-65 school term in an Edmonton Public School are presented in this chapter. Phonic and Reading Tests provided statistical data which are shown in table form and then analysed and explained.

#### CORRELATIONS OF THE TOTAL SCORES ON THE PHONICS AND READING TESTS FOR THE TOTAL GROUP AND SUB-GROUPS

##### Grade Three

Table VII shows that for the total sample and for each of the three groups of 'high, average, and low' reading achievers, and for each of the sub-groups, 'average-girls', 'average-boys', 'low-girls', and 'low-boys', there was a high positive correlation between total scores on the Phonics and the Reading Test. Thus, in general the Grade III pupils applied much of their phonic knowledge in attacking unfamiliar words in an actual reading situation. However the correlation for the sub-group, 'high-girls', did not reach significance, while the correlation for the 'high-boys' reached significance at the .05 level. It thus appears that the group of 'high readers' and especially the girls of this group did not use as much phonic knowledge in sounding out





TABLE VII

MEANS, STANDARD DEVIATIONS, AND CORRELATIONS OF THE TOTAL  
 SCORES ON THE PHONICS AND READING TESTS FOR THE TOTAL  
 GROUP AND SUB-GROUPS -- GRADE THREE

	Phonics Test		Reading Test		"r"
	Mean	S.D.	Mean	S.D.	
Total group (36)	149.42	22.07	298.39	58.91	0.926*
High readers (12)	163.17	8.35	335.83	27.68	0.783*
Average readers (12)	157.42	16.54	320.72	39.06	0.812*
Low readers (12)	127.67	19.79	238.42	51.12	0.896*
High-girls (6)	167.50	6.13	355.50	12.04	0.439
High-boys (6)	158.53	8.01	316.17	24.78	0.800**
Aver-girls (6)	154.67	22.07	323.50	39.06	0.957*
Aver-boys (6)	160.17	6.67	318.33	38.89	0.916*
Low-girls (6)	128.17	19.95	232.17	42.38	0.876*
Low-boys (6)	127.17	17.62	244.67	53.03	0.938*

\* significant at the .01 level

\*\* significant at the .05 level



the real words of the Reading Test as did the other sub-groups. This may be partly explained by the fact that the 'high readers' tended to be over-confident. The examiner noted that in many cases, the reader of the 'high group' being so sure of himself, did not hesitate to analyse an unfamiliar word, but instead substituted a word similar in appearance to the one in the story. Another possible explanation is that on some sections of the test scores were very high with little or no range among scores, thus resulting in low or zero correlations.

This table also reveals the amount of phonic knowledge possessed by the total group and sub-groups of this sample. As would be expected, there seems to be a gradual increase from lower to higher readers in the amount of phonic knowledge possessed. This holds true for all cases except the boys of the 'average group', whose mean score not only surpassed the two 'lower groups', but also the two immediately 'higher groups'.

The means for the 'low group' of Grade III readers reveal that this group did not know many of their phonic principles. Even though the 'high', and 'average' groups scored considerably higher than the 'low group', in no case did the mean of any of these groups approach the possible score. The standard deviations show there was little discrepancy among scores made by the pupils within each of the groups of 'high-girls', 'high-boys', and 'average-boys'.





Grade Seven

The data of Table VIII show the correlation coefficient between the total reading and the total phonic score was significant at the .01 level of confidence. This correlation coefficient however was not as high as the corresponding one for the Grade III pupils. The data for the three sub-groups, 'high', 'average', and 'low readers' show that a similar correlation (0.668) occurred for the 'high' and 'average' groups. The correlation for the 'low group' of readers was much higher (0.789), and reached significance at the .01 level of confidence. This finding is similar to that for the Grade Three sampling, where the highest correlation between the Phonics and the Reading Tests occurred for the 'low readers'.

The correlations found for the sub-group of boys and girls point up an interesting finding. Of these six groups a correlation at the .01 level of significance occurred for the 'high-girls' and 'average-boys' only. From this it appears that intelligence may be a related factor in the application of phonics at this level, for of the six sub-groups, the 'high-girls', and the 'average-boys', had the highest mean intelligence quotients.

The correlation for the 'low-boys' reached the .05 level of significance. The investigator noted during the test situation that the 'low-boys' made a much greater effort in attacking the unfamiliar words of the stories than did the other groups. This group in most cases tended to belabour the process of attacking



TABLE VIII

MEANS, STANDARD DEVIATIONS, AND CORRELATIONS OF THE TOTAL  
 SCORES ON THE PHONICS AND READING TESTS FOR THE TOTAL GROUP  
 AND SUB-GROUPS -- GRADE SEVEN

	Phonics Test		Reading Test		
	Mean	S.D.	Mean	S.D.	"r"
Total group (36)	166.42	13.98	373.78	40.88	0.810*
High readers (12)	174.33	7.51	395.17	25.51	0.668**
Aver-readers (12)	168.58	10.87	383.67	21.60	0.668**
Low-readers (12)	156.33	15.58	342.50	48.60	0.789*
High-girls (6)	177.63	8.23	398.83	27.83	0.888*
High-boys (6)	170.83	4.52	391.50	22.36	0.266
Aver-girls (6)	169.83	5.40	383.50	23.94	0.469
Aver-boys (6)	167.33	14.29	383.83	18.98	0.935*
Low-girls (6)	157.33	10.26	333.83	40.49	0.736
Low-boys (6)	155.33	19.45	345.17	55.41	0.830**

\* significant at the .01 level

\*\* significant at the .05 level





unfamiliar words, and tended to exaggerate and/or add many syllables. Thus there was always the possibility of getting correct most of the phonic principles involved. This group had a high "error score." The mean scores on the Phonics Test for the Grade Seven sample show that these pupils had attained a considerable amount of phonic knowledge. There was a consistent increase in scores made, from the 'low readers' to the 'high readers'. All groups and particularly the 'low readers' of the Grade Seven sample scored higher on all phonic principles than did the corresponding readers of the Grade Three sample.

#### CORRELATIONS OF SCORES ON SUB-SECTIONS OF THE PHONICS AND READING TEST FOR GRADE THREE

Table IX shows the means and standard deviations for the Phonics and the Reading Tests, the correlations of the scores on the sub-sections of each test, and the degree of significance of the correlation for the Grade Three sample.

The correlations of the scores on 'consonant blend', 'consonant digraph', 'soft C-G', 'final E', 'phonogram', 'controller', 'closed syllable', 'accent', 'final consonant', and 'syllabication' were significant at the .01 level of confidence; while the correlations of the scores on the sections, 'hard C-G', and 'vowel digraph', reached the .05 level of significance; thus indicating that for these principles a significant relationship did occur between the amount of phonic knowledge used in both test situations. The low correlations of the four sections, 'vowel beginning',



TABLE IX

MEANS, STANDARD DEVIATIONS, AND CORRELATIONS OF SCORES ON  
SUB-SECTIONS OF PHONICS AND READING TESTS

Grade Three

Total Group

N = 36

Subsection	Phonics Test		Reading Test		"r"
	Mean	S.D.	Mean	S.D.	
Consonant blend	8.06	1.51	15.36	3.11	0.683*
Consonant digraph	7.69	1.54	8.86	2.10	0.571*
Vowel beginning	3.56	1.66	15.47	1.77	0.176
Hard C-G	1.72	0.51	11.42	1.61	0.313**
Soft C-G	1.56	0.96	3.58	1.89	0.528*
Final E	3.08	1.53	4.89	2.67	0.544*
Vowel digraph	6.75	2.43	9.03	1.69	0.360**
Phonogram	5.75	1.52	16.81	5.14	0.622*
Controller	5.36	1.83	15.36	3.65	0.543*
Silent letter	1.81	0.99	1.36	0.71	0.099
Open syllable	5.50	2.05	7.94	2.84	0.096
Closed syllable	35.61	6.95	41.08	11.03	0.895*
Accent	19.36	2.91	33.22	6.13	0.656*
Initial Con.	14.39	0.95	31.06	1.61	0.113
Final Con.	14.17	1.24	34.56	5.76	0.655*
Syllab.	15.14	3.16	48.42	14.54	0.853*

\* significant at the .01 level

\*\* significant at the .05 level





'silent letter', 'open syllable', and 'initial consonant' indicated little relationship between scores on both tests for these principles. There was very little range among the scores of the thirty-six pupils on 'initial consonants', on both the Phonics and the Reading Tests. The means on the Phonics Test for 'initial consonants' was 14.39 (possible score, 15.00), while the standard deviation was 0.95. The mean on the Reading Test was 31.06 (possible score, 32.00), with a standard deviation of 1.61. It thus appears that by the end of Grade Three all pupils of this grade knew the 'initial consonant' principle. The correlation of the section on 'open syllables' was low for almost the opposite reason to that stated above. Here the means on both tests were extremely low. On the Phonics Test, the mean was 5.50 (possible score, 16.00), with a standard deviation of 2.05; while the mean on the Reading Test was 7.94 (possible score, 15.00), with a standard deviation of 2.84.

Table X shows that for the high reading achievers in Grade Three, the correlations of the Phonics and the Reading Tests reached the .01 level of significance on the sections, 'soft C-G', 'phonogram', 'closed syllable'; and the .05 level of significance on the sections, 'consonant blend', 'final consonant', and 'syllabication'.

On the sections, 'consonant digraph', 'vowel beginning', 'hard C-G', 'silent letter', and 'initial consonant' all pupils made very high scores as indicated by the means. Differences



TABLE X

MEANS, STANDARD DEVIATIONS, AND CORRELATIONS OF SCORES ON  
SUB-SECTIONS OF PHONICS AND READING TESTS

Grade Three

High Group

N = 12

Subsection	Phonics Test		Reading Test		"r"
	Mean	S.D.	Mean	S.D.	
Consonant blend	8.67	0.62	17.17	1.57	0.567**
Consonant digraph	8.50	0.65	10.08	0.64	0.101
Vowel beginning	4.00	1.35	16.33	1.18	0.157
Hard C-G	2.00	-0.00	12.33	0.94	0.000
Soft C-G	1.75	1.01	4.58	1.66	0.735*
Final E	3.42	1.19	6.17	2.23	-0.058
Vowel digraph	7.33	2.43	9.58	1.11	-0.072
Phonogram	6.17	1.14	19.50	2.99	0.757*
Controller	5.67	1.13	17.92	1.04	0.163
Silent Letter	2.33	0.62	1.57	0.49	-0.090
Open syllable	5.33	2.25	9.58	2.72	0.104
Closed syllable	40.08	3.43	47.92	4.59	0.837*
Accent	21.33	1.84	36.25	4.46	0.010
Initial Con.	14.75	0.43	31.33	0.85	-0.000
Final Con.	14.75	0.43	37.75	1.09	0.574**
Syllabication	17.08	1.66	57.83	7.21	0.580**

\* significant at the .01 level

\*\* significant at the .05 level





among scores were quite small as revealed by the standard deviations. Similar to the findings for the total group, the 'high readers' made low scores on both tests on 'open syllables'. There was little relationship between scores on the sections, 'accent', 'controller', 'vowel digraph', and 'final E'.

Table XI shows that the .01 level of significance was reached by the 'average readers' for the sections, 'controller', 'closed syllable', and 'accent'; while the .05 level was reached for the sections, 'consonant digraph', and 'final E'. Thus the pupils were using a comparable amount of their knowledge of these principles in both tests. There was little range among the scores on each of the sections, 'hard C-G', 'initial consonant', and 'final consonant', as indicated by the means and standard deviations, and all scores on these sections were high. Means and standard deviations show that low scores were made on the section, 'soft C-G', on both tests, with little discrepancy among scores. The scores of this group on 'open syllables' were low. The means indicate that this group were better in the application of this principle to the real words of the Reading Test than they were in applying it to the nonsense words of the Phonics Test. The correlations of the sections, 'consonant blend', 'vowel beginning', 'vowel digraph', 'phonogram', 'silent letter', and 'syllabication' were low.

Table XII shows that for the 'low group' of readers in Grade Three, the scores on the sections 'closed syllable', 'accent',



TABLE XI

MEANS, STANDARD DEVIATIONS, AND CORRELATIONS OF SCORES ON  
SUB-SECTIONS OF PHONICS AND READING TESTS

Grade Three

Average Group

N = 12

Subsection	Phonics Test		Reading Test		"r"
	Mean	S.D.	Mean	S.D.	
Consonant blend	8.58	0.95	16.42	2.36	0.373
Consonant digraph	7.92	1.04	9.58	1.75	0.622**
Vowel beginning	4.08	1.26	15.67	1.43	0.015
Hard C-G	1.67	0.47	12.00	1.00	0.177
Soft C-G	1.75	0.72	3.75	1.64	0.158
Final E	4.00	1.22	6.00	2.45	0.667**
Vowel digraph	7.67	1.93	10.08	1.11	0.090
Phonogram	6.50	1.19	18.67	4.17	0.537
Controller	5.58	1.98	16.33	2.78	0.814*
Silent Letter	2.17	0.69	1.50	0.65	0.188
Open syllable	5.83	2.89	8.75	1.96	-0.171
Closed syllable	37.58	5.48	45.58	7.73	0.816*
Accent	19.00	2.61	34.58	6.16	0.715*
Initial Con.	14.67	0.62	31.17	1.07	-0.042
Final Consonant	14.42	1.04	37.00	1.68	0.525
Syllab.	16.00	2.42	53.83	8.63	0.504

\* significant at the .01 level

\*\* significant at the .05 level





TABLE XII

MEANS, STANDARD DEVIATIONS, AND CORRELATIONS OF SCORES ON  
SUB-SECTIONS OF PHONICS AND READING TESTS

Grade Three

Low Group

N = 12

Subsection	Phonics Test		Reading Test		"r"
	Mean	S.D.	Mean	S.D.	
Consonant blend	6.92	1.89	12.50	2.90	0.600**
Consonant digraph	6.67	1.97	6.92	1.98	0.313
Vowel beginning	2.58	1.85	14.42	2.02	-0.065
Hard C-G	1.50	0.65	9.92	1.55	0.125
Soft C-G	1.17	0.99	2.42	1.71	0.454
Final E	1.83	1.28	2.50	1.38	0.235
Vowel digraph	5.25	2.17	7.42	1.44	0.234
Phonogram	4.58	1.44	12.25	4.62	0.216
Controller	4.83	1.99	11.83	3.34	0.497
Silent Letter	0.92	0.95	1.00	0.82	-0.428
Open syllable	5.33	1.70	5.50	1.89	0.414
Closed syllable	29.17	6.12	29.75	9.42	0.787*
Accent	17.75	2.92	28.83	4.98	0.754*
Initial Con.	13.75	1.23	30.67	2.39	0.056
Final Con.	13.33	1.49	28.92	6.98	0.547
Syllab.	12.33	3.01	35.58	13.03	0.911*

\* significant at the .01 level

\*\* significant at the .05 level



and 'syllabication', reached significance at the .01 level of confidence, while the .05 level was reached on the 'consonant blend' section. This table points up many interesting findings. As was found for the previous groups, the scores on the 'initial consonant' did not discriminate for the pupils of this group, and all pupils scored highly. These pupils made low scores on the sections 'soft C-G', 'final E', 'phonogram', 'controller', 'silent letter', and 'open syllable', on both tests. The small standard deviations show that the scores clustered closely around the means. The means for these sections were very low, thus indicating a minimal amount of knowledge about these phonic principles. The correlations of the Table reveal that there was a significant relationship between scores on 'syllabication principles', 'closed syllable', and 'accent generalizations'. However, a glance at the possible scores, and the means achieved, reveals that the knowledge of these principles was not great.

Table XIII reveals that for the sub-group, 'high-girls', there was no significant correlation of any of the phonic sections on the Phonics Test, and the corresponding sections of the Reading Test. Thus there was little relationship between scores on the various corresponding sections of both tests. The scores on each of the sections 'consonant blend', 'consonant digraph', 'vowel beginning', 'hard C-G', 'silent letter', 'closed syllable', 'accent', 'initial consonant', and 'final consonant' did not show any range for the pupils of this group; and all scores were





TABLE XIII

MEANS, STANDARD DEVIATIONS, AND CORRELATIONS OF SCORES ON  
SUB-SECTIONS OF PHONICS AND READING TESTS

Grade Three

High-Girls

N = 6

Subsection	Phonics Test		Reading Test		"r"
	Mean	S.D.	Mean	S.D.	
Consonant blend	8.83	0.37	18.00	0.82	0.548
Consonant digraph	8.67	0.47	10.00	0.58	-0.612
Vowel beginning	4.67	0.47	16.83	0.37	-0.316
Hard C-G	2.00	-0.00	12.67	0.47	0.000
Soft C-G	2.00	1.15	5.00	1.15	0.750
Final E	3.17	1.07	6.67	1.11	0.753
Vowel digraph	6.50	2.99	10.17	0.69	0.365
Phonogram	6.83	0.90	21.50	1.71	0.272
Controller	6.33	1.37	18.17	1.07	0.076
Silent Letter	2.67	0.47	1.83	0.37	-0.316
Open syllable	5.33	2.98	11.17	1.77	0.273
Closed syllable	41.83	2.41	51.33	1.49	0.619
Accent	20.83	1.34	39.33	1.60	-0.129
Initial Con.	14.83	0.37	31.83	0.37	-0.200
Final Con.	15.00	-0.00	38.33	0.75	-0.000
Syllab.	18.00	1.15	62.83	3.58	-0.124

\* significant at the .01 level

\*\* significant at the .05 level



very high on these phonic principles. The correlations of the 'final E' approached significance at the .05 level of confidence. The means for this section indicated that the pupils of this group made low scores on this phonic element, both on the Phonics and on the Reading Test. Low correlations thus indicating little relationship between corresponding test sections were found for the principles 'soft C-G', 'vowel digraph', 'controller', 'phonogram', 'open syllable', and 'syllabication'. For the phonic principles, 'phonogram', and 'open syllable', the 'high-girls' made a much higher score on the Reading than on the Phonics Test.

Table XIV shows there was a significant relationship between scores on the 'closed syllable' principle on both the Phonics and the Reading Test. The correlation of the scores for this principle reached the .01 level of significance while the .05 level was reached for the principles "soft C-G", and 'phonogram'. The 'high-boys', like the 'high-girls', did not show a high degree of relationship between their phonic and reading scores. Scores on the phonic principles 'consonant digraph', 'hard C-G', 'initial consonant', and 'final consonant' were high on both tests and there was little range within these scores. The 'high-boys' like the 'high-girls', scored very low on the 'final E' section, but in this case, the better scores were made on the Phonics Test. It appears that this group had some knowledge of this element as indicated by the scores on the Phonics Test. However, the scores





TABLE XIV

MEANS, STANDARD DEVIATIONS, AND CORRELATIONS OF SCORES ON  
SUB-SECTIONS OF PHONICS AND READING TESTS

Grade Three

High-boys

N = 6

Subsection	Phonics Test		Reading Test		"r"
	Mean	S.D.	Mean	S.D.	
Consonant blend	8.50	0.76	16.35	1.70	0.514
Consonant digraph	8.33	0.75	10.17	0.69	0.542
Vowel beginning	3.33	1.60	15.83	1.46	-0.048
Hard C-G	2.00	-0.00	12.00	1.15	0.000
Soft C-G	1.50	0.76	4.17	1.95	0.839**
Final E	3.67	1.25	5.67	2.87	-0.264
Vowel digraph	8.17	1.21	9.00	1.15	-0.119
Phonogram	5.50	0.96	17.50	2.63	0.827**
Controller	5.00	0.82	17.67	0.94	0.000
Silent Letter	2.00	0.58	1.33	0.47	-0.612
Open syllable	5.33	1.11	8.00	2.58	-0.058
Closed syllable	38.33	3.40	44.50	4.07	0.879*
Accent	21.83	2.11	33.17	4.26	0.392
Initial Con.	14.67	0.47	30.83	0.90	-0.131
Final Con.	14.50	0.50	37.17	1.07	0.469
Syllab.	16.17	1.57	52.83	6.47	0.511

\* significant at the .01 level

\*\* significant at the .05 level



on this principle when measured by the real words of the Reading Test were much lower. This group also scored very low on the 'open syllable' section. The mean for this principle on the Phonics Test was 5.33 (possible score, 16.00); and on the Reading Test, 8.00 (possible score, 15.00). There was also a low correlation between these scores. Low correlations also occurred between the corresponding sections on each test of the principles 'consonant blend', 'vowel beginning', 'vowel digraph', 'controller', 'silent letter', 'accent', and 'syllabication'.

Table XV reveals that for the 'average-girls', the correlations of the 'accent section' on both tests reached the .01 level of significance; while the .05 level of significance was reached for the correlations on the sections 'hard C-G', 'final E', 'phonogram', 'controller', and 'closed syllable'. For this group of readers there was little range among scores on each of the sections 'consonant digraph', 'vowel beginning', 'initial consonant', and 'final consonant'. There were low correlations for each of these sections. Low correlations were also found for the sections 'consonant blend', 'soft C-G', 'vowel digraph', 'silent letter', and 'syllabication'. The means and "r" indicate both a low score and a low correlation for the section on 'open syllables'. The significant correlations stated above indicate that the pupils of this group were more consistent in the degree of phonic knowledge used in both test situations than were the two previous groups.





TABLE XV

MEANS, STANDARD DEVIATIONS, AND CORRELATIONS OF SCORES ON  
SUB-SECTIONS OF PHONICS AND READING TESTS

Grade Three

Average-Girls

N = 6

Subsection	Phonics Test		Reading Test		
	Mean	S.D.	Mean	S.D.	"r"
Consonant blend	8.17	1.21	16.67	2.29	0.681
Consonant digraph	8.17	0.90	9.83	1.07	0.725
Vowel beginning	4.17	1.46	16.00	0.82	0.558
Hard C-G	1.50	0.50	12.00	0.82	0.816**
Soft C-G	1.67	0.75	4.33	1.89	0.435
Final E	4.17	1.21	6.50	2.50	0.797**
Vowel digraph	6.83	2.11	10.00	1.15	-0.068
Phonogram	6.67	1.49	17.67	4.64	0.827**
Controller	5.33	2.13	16.67	2.13	0.756**
Silent Letter	2.33	0.75	1.67	0.47	0.316
Open syllable	5.83	1.77	8.50	1.61	0.380
Closed syllable	37.17	7.24	45.83	9.03	0.847**
Accent	17.67	2.49	35.00	5.42	0.962*
Initial Con.	14.67	0.47	31.00	1.41	-0.250
Final Con.	14.50	1.12	37.35	2.05	0.725
Syllabication	15.83	2.79	54.50	8.22	0.664

\* significant at the .01 level

\*\* significant at the .05 level



Table XVI reveals a correlation significant at the .01 level was found for the phonic principle 'controller'; while for the 'closed syllable', and 'accent', the correlation was significant at the .05 level. For this group ('average-boys') there was little range within scores on the sections 'hard C-G', 'initial consonant', and 'final consonant'. Low correlations occurred for the principles 'consonant blend', 'consonant digraph', 'vowel beginning', 'vowel digraph', 'phonogram', 'silent letter', and 'syllabication' thus indicating little relationship between the degree of phonic knowledge used by these pupils in both test situations. Low correlations and low scores as indicated by the "r" and means were found for the principles 'soft C-G', 'final E', and 'open syllable'.

The data of Table XVII show that for the 'low-girls' there was a significant relationship between scores on the section testing 'syllabication principles'. Correlations significant at the .05 level occurred for the principles 'soft C-G' and 'final consonant'. It seems as if this group used some of their phonic knowledge as indicated by the Phonics Test scores, in sounding out the words in the stories of the Reading Test. The pupils made low scores on the sections 'final E', 'phonogram', 'controller', 'silent letter', and 'open syllable'. Nevertheless the correlations for the above sections (except 'silent letter') approached significance at the .05 level of confidence, thus indicating some relationship between scores on both tests. The





TABLE XVI

MEANS, STANDARD DEVIATIONS, AND CORRELATIONS OF SCORES ON  
SUB-SECTIONS OF PHONICS AND READING TESTS

Grade Three

Average-Boys

N = 6

Subsection	Phonics Test		Reading Test		"r"
	Mean	S.D.	Mean	S.D.	
Consonant blend	9.00	-0.00	16.17	2.41	-0.000
Consonant digraph	7.67	1.11	9.33	2.21	0.591
Vowel beginning	4.00	1.00	15.33	1.80	-0.371
Hard C-G	1.83	0.37	12.00	1.15	-0.387
Soft C-G	1.83	0.69	3.17	1.07	-0.189
Final E	3.83	1.21	5.50	2.29	0.510
Vowel digraph	8.50	1.26	10.17	1.07	0.310
Phonogram	6.33	0.75	19.67	3.35	-0.022
Controller	5.83	1.77	16.00	3.27	0.979*
Silent Letter	2.00	0.58	1.33	0.75	-0.000
Open syllable	5.83	2.41	9.00	2.24	-0.464
Closed syllable	38.00	2.71	45.33	6.61	0.840**
Accent	20.83	1.97	34.17	6.79	0.829**
Initial Con.	14.67	0.75	31.33	0.47	0.316
Final Con.	14.33	0.94	36.67	1.11	0.107
Syllab.	16.17	1.95	53.17	8.97	0.341

\* significant at the .01 level

\*\* significant at the .05 level



TABLE XVII

MEANS, STANDARD DEVIATIONS, AND CORRELATIONS OF SCORES ON  
SUB-SECTIONS OF PHONICS AND READING TESTS

Grade Three

Low-Girls

N = 6

Subsection	Phonics Test		Reading Test		"r"
	Mean	S.D.	Mean	S.D.	
Consonant blend	7.50	0.76	12.50	2.57	0.213
Consonant digraph	7.33	1.11	6.67	2.29	0.242
Vowel beginning	2.83	1.95	15.00	1.53	-0.783**
Hard C-G	1.67	0.47	9.83	1.67	-0.070
Soft C-G	1.00	0.83	3.00	1.91	0.853**
Final E	2.17	0.69	1.83	1.57	0.643
Vowel digraph	4.50	2.22	7.67	1.37	0.438
Phonogram	4.17	1.34	11.67	3.50	0.686
Controller	4.00	2.16	10.83	3.02	0.485
Silent Letter	0.67	0.75	1.83	0.69	0.217
Open syllable	5.00	1.73	4.33	1.60	0.542
Closed syllable	30.17	5.87	29.00	9.15	0.692
Accent	17.50	2.69	28.33	4.53	0.614
Initial Con.	14.00	1.00	31.67	0.47	-0.354
Final Con.	13.50	1.38	28.17	7.24	0.756**
Syllab.	12.17	2.91	30.83	11.77	0.920*

\* significant at the .01 level

\*\* significant at the .05 level





correlation for the 'vowel beginning' principle was negative and significant at the .05 level thus indicating these pupils did not use a comparable amount of phonic knowledge on this section of the Phonics Test, and on the corresponding section of the Reading Test.

Table XVIII indicates there was a .01 level of significance for the 'low-boys', for the correlations of the scores on the sections 'closed syllable', and 'syllabication' and a .05 level of significance for the correlations of the sections 'consonant blend', and 'accent'. A negative correlation significant at the .01 level occurred for the section on 'silent letters'. This indicates that the pupils of this group differed considerably in the amount of knowledge of this principle used in both test situations. There was little range among the scores on 'initial consonant'. Low correlations occurred for the sections 'consonant digraph', 'vowel beginning', 'hard C-G', 'vowel digraph', 'controller', and 'final consonant', while low scores and low correlations occurred for the sections 'final E', 'phonogram', and 'open syllable'.

#### SUMMARY OF DATA ON CORRELATIONS FOR THE GRADE THREE SAMPLE

From the means, standard deviations, and "r"s of the above mentioned data, it seems that the Grade Three pupils in general used a high percentage of their phonic knowledge as measured by the Phonics Test, in sounding out the real words of the Reading Test. This statement does not, however, hold true for the



TABLE XVIII

MEANS, STANDARD DEVIATIONS, AND CORRELATIONS OF SCORES ON  
SUB-SECTIONS OF PHONICS AND READING TESTS

Grade Three

Low-Boys

N = 6

Subsection	Phonics Test		Reading Test		"r"
	Mean	S.D.	Mean	S.D.	
Consonant blend	6.33	2.43	12.50	3.20	0.794**
Consonant digraph	6.00	2.38	7.17	1.57	0.579
Vowel beginning	2.33	1.70	13.83	2.27	0.404
Hard C-G	1.33	0.75	10.00	1.41	0.316
Soft C-G	1.33	1.11	1.83	1.21	0.290
Final E	1.50	1.61	3.17	0.69	0.528
Vowel digraph	6.00	1.83	7.17	1.46	0.187
Phonogram	5.00	1.41	12.83	5.46	-0.108
Controller	5.67	1.37	12.83	3.34	0.388
Silent Letter	1.17	1.07	1.17	0.90	-0.899*
Open syllable	5.67	1.60	6.67	1.37	0.177
Closed syllable	28.17	6.20	30.50	9.62	0.923*
Accent	18.00	3.11	29.33	5.34	0.853**
Initial Con.	13.50	1.38	29.67	3.04	0.000
Final Con.	13.17	1.57	29.67	6.42	0.385
Syllab.	12.50	3.10	36.33	13.63	0.924*

\* significant at the .01 level

\*\* significant at the .05 level





sub-group of 'high-girls', where no significant correlations were found, either for the total scores, or the scores of either sub-section. The sub-group, 'high-boys', showed a similar trend though not to the same extent. The correlation for this latter group, between the total scores of both tests was significant at the .05 level. For this same group, the correlations between the scores on the sub-sections, 'soft C-G', and 'phonogram' were significant at the .05 level, while a correlation significant at the .01 level was found between the scores on the 'closed syllable' section.

Though the pupils of the Grade Three sample used much of their phonic knowledge in sounding out the words of the stories, this however, varied with the phonic principle involved.

Table XIX shows that in many instances there was little relationship between scores on particular phonic principles tested on corresponding sections of both tests.

For all groups, high scores were made on the 'initial consonant' principle and there was little discrepancy among these scores. For most of the groups, there was little discrepancy among the scores on the 'open syllable' principle. Here, however, the scores were always low.

There was never a significant correlation for the principle 'vowel digraph' for either of the sub-groups thus indicating little relationship between scores on both tests occurred for this principle. A negative correlation significant at the .05 level occurred once for the principles 'vowel beginning', and 'silent letter'.



TABLE XIX

## CORRELATIONS OF THE PHONIC PRINCIPLES FOR THE VARIOUS SUB-GROUPS -- GRADE THREE

Principle	High	Average	Low	High		Average		Low	
				Girls	Boys	Girls	Boys	Girls	Boys
Consonant blend	**		**	OH	OH				**
Consonant digraph	OH	**		OH		OH			
Vowel beginning	OH			OH	OH	OH		**	
Hard C-G	OH	OH		OH		**	OH		
Soft C-G	*	OL	OL		**		OL	**	
Final E		**	OL	OL		**	OL	OL	OL
Vowel digraph									
Phonogram	*		OL		**	**			OL
Controller		*	OL		**	**	*		
Silent Letter	OH		OL	OH				OL	*
Open syllable	OL		OL		OL	OL	OL	OL	OL
Closed Syllable	*	*	*	OH	*	**	**	*	*
Accent		*	*	OH		*	**		**
Initial Consonant	OH	OH	OH	OH	OH	OH	OH	OH	OH
Final Consonant	**	OH		OH	OH	OH	OH	**	
Syllabication	**		*					*	*

\* significant at the .01 level

\*\* significant at the .05 level

(blank space) no significant correlation

OH no significant correlation; all scores high

OL no significant correlation; all scores low





It was difficult to find a pattern within this grade for the phonic principles used by the pupils in the actual reading situation as indicated by the significant correlations that occurred. This points up the importance of individual differences in the application of phonic principles.

A slight trend existed for the use of a knowledge of the principles 'closed syllable', 'accent', and 'syllabication'. The correlations of the scores on the section 'closed syllable' were significant at the .01 level for the three sub-groups, 'high', 'average', and 'low readers', and also for the 'high-boys', and 'low-boys', while correlations of the same section were significant at the .05 level for the 'average-girls' and 'average-boys'.

Correlations of the scores on 'accent' were significant for the 'average' and 'low groups', and for the 'average-girls', 'average-boys', and 'low-boys'. However, a significant relationship between scores on this principle on both tests did not occur for the group of 'high readers' nor for the boys within this group. The 'high-girls' all made high scores on this principle and there was little range of scores.

Knowledge of 'syllabication' was used mainly by the 'low readers'. For the 'low group' ( $N = 12$ ) and for the 'low-girls', and 'low-boys', the correlations for 'syllabication' were significant at the .01 level. The only other group to show any significant use of a knowledge of this principle, was the 'high-girls'. The correlation of scores on this principle for this group was significant at the .05 level.



CORRELATIONS OF THE SCORES ON SUB-SECTIONS OF THE PHONICS  
AND READING TESTS FOR GRADE SEVEN

Table XX shows the correlations of the various sections of the Phonics and Reading Tests for the Grade Seven pupils of this experiment. The correlations of the principles 'consonant blend', 'soft C-G', 'final E', 'vowel digraph', 'closed syllable', and 'syllabication' were significant at the .01 level of confidence; while correlations of the sections 'consonant digraph', 'hard C-G', 'silent letter', 'open syllable', and 'final consonant' were significant at the .05 level thus indicating a high relationship between scores on these sections on both tests. For all other sections, the correlations were low though positive. There was little range among the scores of the sample on each of the sections 'vowel beginning', 'phonogram', 'initial consonant', and 'final consonant'. The Grade Seven pupils made higher scores on the sections 'vowel beginning', and 'controller', when they applied these principles to real words (stories), than when they applied them to nonsense words (Phonics Test).

Table XXI shows the correlations for the 'high readers' of the sections 'vowel digraph', and 'silent letter' were significant at the .01 level of confidence, while the correlation of the section on 'syllabication' was significant at the .05 level. There was little range of scores for the pupils of this group on the sections testing the principles 'consonant blend', 'consonant digraph', 'vowel beginning', 'hard C-G', 'initial consonant', and





TABLE XX

MEANS, STANDARD DEVIATIONS, AND CORRELATIONS OF SCORES ON  
SUB-SECTIONS OF PHONICS AND READING TESTS

Grade Seven

Total Group

N = 36

Subsection	Phonics Test		Reading Test		"r"
	Mean	S.D.	Mean	S.D.	
Consonant blend	8.75	0.68	21.83	3.04	0.462*
Consonant digraph	8.39	0.72	10.56	1.54	0.358**
Vowel beginning	4.22	1.11	10.61	0.72	0.004
Hard C-G	1.86	0.42	16.94	1.58	0.366**
Soft C-G	2.44	0.80	4.22	1.16	0.435*
Final E	3.33	1.65	15.00	2.74	0.473*
Vowel digraph	7.81	2.03	6.56	1.32	0.663*
Phonogram	6.11	1.61	22.81	2.86	0.324
Controller	6.00	1.33	25.47	2.95	0.212
Silent Letter	2.19	0.94	3.97	1.17	0.386**
Open syllable	5.97	2.17	15.97	3.16	0.377**
Closed syllable	40.06	4.30	41.33	6.03	0.561*
Accent	22.39	1.93	54.56	6.81	0.300
Initial Con.	14.75	0.43	38.28	1.12	0.315
Final Con.	14.83	0.50	32.97	2.15	0.357**
Syllab.	17.31	2.57	52.14	11.59	0.574*

\* significant at the .01 level

\*\* significant at the .05 level



TABLE XXI

MEANS, STANDARD DEVIATIONS, AND CORRELATIONS OF SCORES ON  
SUB-SECTIONS OF PHONICS AND READING TESTS

Grade Seven

High Group

N = 12

Subsection	Phonics Test		Reading Test		"r"
	Mean	S.D.	Mean	S.D.	
Consonant blend	8.92	0.28	23.25	0.72	0.104
Consonant digraph	8.75	0.43	11.50	0.65	0.447
Vowel Beginning	4.74	0.43	10.75	0.60	0.081
Hard C-G	2.00	-0.00	17.17	1.40	0.000
Soft C-G	2.75	0.43	4.58	0.86	0.391
Final E	4.17	1.14	16.00	1.68	0.130
Vowel digraph	8.25	1.48	7.00	0.82	0.759*
Phonogram	6.75	1.48	23.75	2.42	-0.111
Controller	6.92	0.86	26.50	1.32	0.037
Silent Letter	2.75	0.43	4.42	1.44	0.701*
Open syllable	5.92	2.56	17.25	3.24	0.544
Closed syllable	41.83	2.07	44.75	3.74	0.188
Accent	22.67	2.05	56.42	2.60	0.260
Initial Con.	15.00	-0.00	38.42	0.64	-0.000
Final Con.	15.00	-0.00	33.92	1.32	-0.000
Syllab.	17.92	2.14	57.83	6.99	0.663**

\* significant at the .01 level

\*\* significant at the .05 level





'final consonant'. The correlations of these sections were low. The correlation of the section 'open syllable' approached the .05 level of confidence. Scores for this principle were low on both tests, as shown by the means. The means and standard deviations were--Phonics Test, 5.92 (possible score, 16.00) and standard deviation, 2.56. On the reading Test the mean was 17.25 (possible score, 27.00) and standard deviation was 3.24.

Low correlations indicating that little knowledge of phonic principles was used in sounding out the words of the Reading Test occurred for the principles, 'soft C-G', 'final E', 'phonogram', 'controller', 'closed syllable', and 'accent'.

Table XXII reveals that for the 'average group', no correlations were significant at the .01 level. Correlations for the sections 'consonant digraph', 'soft C-G', and 'closed syllable' were significant at the .05 level. There was little range of scores on each of the sections 'consonant blend', 'vowel beginning', 'hard C-G', 'initial consonant', and 'final consonant', as indicated by the standard deviations. The correlations of these sections were low. There was little relationship between scores on both tests for the principles 'final E', 'vowel digraph', 'phonogram', 'controller', 'silent letter', 'accent', and 'syllabication'. Similar to that found for the 'high group', correlations and means for the section on 'open syllables' were low.



TABLE XXII

MEANS, STANDARD DEVIATIONS, AND CORRELATIONS OF SCORES ON  
SUB-SECTIONS OF PHONICS AND READING TESTS

Grade Seven

Average Group

N = 12

Subsection	Phonics Test		Reading Test		"r"
	Mean	S.D.	Mean	S.D.	
Consonant blend	9.00	-0.00	22.75	1.30	0.000
Consonant digraph	8.25	0.60	10.58	1.19	0.619**
Vowel beginning	4.42	0.76	10.58	0.76	0.446
Hard C-G	1.83	0.37	17.50	1.12	-0.200
Soft C-G	2.25	0.92	4.35	1.16	0.562**
Final E	3.75	1.53	15.25	2.01	0.454
Vowel digraph	8.33	1.49	7.00	1.29	0.346
Phonogram	6.33	1.31	23.50	1.94	0.295
Controller	5.67	1.18	26.25	1.83	0.309
Silent Letter	2.25	0.72	4.00	1.00	-0.000
Open Syllable	6.08	1.38	16.17	3.05	0.392
Closed syllable	40.50	4.05	42.17	4.26	0.628**
Accent	22.33	1.60	56.33	1.80	0.077
Initial Con.	14.92	0.28	38.58	0.86	-0.146
Final Con.	14.83	0.37	33.33	1.43	0.416
Syllab.	17.83	2.23	55.42	6.73	0.544

\*\* significant at the .05 level





Table XXIII shows the correlation coefficient of the scores on the section 'vowel digraph' for the 'low group' reached the .01 level of significance; while the correlation of the section 'hard C-G' was significant at the .05 level. The correlations of the remaining sections did not reach the .05 level of significance thus indicating that the pupils of this group applied little knowledge of these individual phonic principles in the oral reading test. There was little range among the scores for the pupils of this group on the sections testing 'initial consonant' and 'final consonant'. Low correlations and low scores as indicated by the "r" and means occurred for the principles 'silent letter', and 'open syllable'. This group had a low positive correlation for 'syllabication'. However, the pupils applied their knowledge of this principle to the nonsense words of the Phonics Test more than they did to the actual reading situation.

Table XXIV shows that for the 'high-girls', a correlation significant at the .05 level occurred for the sections 'soft C-G', and 'open syllable'. The means on the section 'open syllable' indicate a low degree of knowledge of this principle. Nevertheless the correlation of this principle was significant at the .05 level thus indicating a relationship between the application of a knowledge of this principle on both tests. There was little range among the various scores of this group on the sections 'consonant blend', 'consonant digraph', 'vowel



TABLE XXIII

MEANS, STANDARD DEVIATIONS, AND CORRELATIONS OF SCORES ON  
SUB-SECTIONS OF PHONICS AND READING TESTS

Grade Seven

Low Group

N = 12

Subsection	Phonics Test		Reading Test		"r"
	Mean	S.D.	Mean	S.D.	
Consonant blend	8.33	1.03	19.50	4.15	0.332
Consonant digraph	8.17	0.90	9.58	1.85	0.042
Vowel beginning	3.50	1.44	10.50	0.76	-0.378
Hard C-G	1.75	0.60	16.17	1.82	0.655**
Soft C-G	2.33	0.85	3.83	1.28	0.281
Final E	2.08	1.44	13.75	3.61	0.437
Vowel digraph	6.83	2.54	5.67	1.31	0.732*
Phonogram	5.25	1.64	21.17	3.29	0.363
Controller	5.42	1.38	23.67	4.01	0.010
Silent Letter	1.58	1.11	3.50	0.76	0.343
Open syllable	5.92	2.36	14.50	2.50	0.261
Closed syllable	37.83	5.15	37.08	6.82	0.442
Accent	22.17	2.07	50.92	10.46	0.176
Initial Con.	14.33	0.47	37.83	1.52	0.310
Final Con.	14.67	0.75	31.67	2.72	0.274
Syllab.	16.17	2.88	43.17	13.61	0.454

\* significant at the .01 level

\*\* significant at the .05 level





TABLE XXIV

MEANS, STANDARD DEVIATIONS, AND CORRELATIONS OF SCORES ON  
SUB-SECTIONS OF PHONICS AND READING TESTS

Grade Seven

High-Girls

N = 6

Subsection	Phonics Test		Reading Test		"r"
	Mean	S.D.	Mean	S.D.	
Consonant blend	8.83	0.37	23.33	0.47	0.316
Consonant digraph	8.83	0.37	11.50	0.76	0.293
Vowel beginning	4.83	0.37	11.00	-0.00	-0.000
Hard C-G	2.00	-0.00	17.50	1.50	0.000
Soft C-G	2.83	0.37	4.83	1.07	0.768**
Final E	4.83	0.37	16.17	1.95	-0.191
Vowel digraph	8.67	0.94	7.33	0.75	0.632
Phonogram	7.50	0.96	22.83	2.54	0.650
Controller	7.00	0.82	26.50	1.61	0.254
Silent Letter	3.00	-0.00	5.33	0.94	-0.000
Open syllable	6.17	2.61	18.17	3.44	0.796**
Closed syllable	42.17	1.34	45.67	3.90	0.360
Accent	22.00	2.45	56.33	2.92	0.558
Initial Con.	15.00	-0.00	38.67	0.47	-0.000
Final Con.	15.00	-0.00	33.67	1.60	-0.000
Syllab.	19.17	1.77	60.00	7.70	0.501

\*\* significant at the .05 level



beginning', 'hard C-G', 'final E', 'controller', 'silent letter', 'initial consonant', and 'final consonant'. The correlation of scores on each of these sections on both tests was low.

Table XXV reveals that for the 'high-boys' like the 'high-girls', there was little relationship between scores on test sections. Correlations of the scores on the sections 'vowel digraph', and 'syllabication', reached the .05 level of significance. Also similar to that revealed for the 'high-girls', the data of this group showed that low correlations and low scores occurred for the 'open syllable' principle. This group scored highly on the sections 'consonant blend', 'consonant digraph', 'vowel beginning', 'initial consonant', and 'final consonant'. The standard deviations show that the scores on these principles for this group clustered closely around the mean.

Table XXVI shows that for the 'average-girls', correlations significant at the .01 level, and .05 level, occurred for the scores on the sections 'consonant digraph', and 'soft C-G', respectively.

The data of this table also reveal that half of the correlations for this group were negative with the correlation of the phonic principle 'controller' being significant at the .01 level. This indicates that these pupils did not use a comparable amount of phonic knowledge on the corresponding sections of both tests. That is, a pupil who scored highly





TABLE XXV

MEANS, STANDARD DEVIATIONS, AND CORRELATIONS OF SCORES ON  
SUB-SECTIONS OF PHONICS AND READING TESTS

Grade Seven

High-Boys

N = 6

Subsection	Phonics Test		Reading Test		"r"
	Mean	S.D.	Mean	S.D.	
Consonant blend	9.00	-0.00	23.17	0.90	-0.000
Consonant digraph	8.67	0.47	11.50	0.50	0.707
Vowel beginning	4.67	0.47	10.50	0.76	0.000
Hard C-G	2.00	-0.00	16.83	1.21	0.000
Soft C-G	2.67	0.47	4.53	0.47	-0.250
Final E	3.50	1.26	15.83	1.34	0.246
Vowel digraph	7.83	1.77	6.67	0.75	0.841**
Phonogram	6.00	1.53	24.67	1.89	-0.347
Controller	6.83	0.90	26.50	0.96	-0.291
Silent Letter	2.50	0.50	3.50	1.26	0.662
Open syllable	5.67	2.49	16.33	2.75	0.211
Closed syllable	41.50	2.57	43.83	3.34	0.049
Accent	23.33	1.25	56.50	2.22	-0.482
Initial Con.	15.00	-0.00	38.17	0.69	-0.000
Final Con.	15.00	-0.00	34.17	0.90	-0.000
Syllab.	16.67	1.70	55.67	5.37	0.827**

\*\* significant at the .05 level



TABLE XXVI

MEANS, STANDARD DEVIATIONS, AND CORRELATIONS OF SCORES ON  
SUB-SECTIONS OF PHONICS AND READING TESTS

Grade Seven

Average-Girls

N = 6

Subsection	Phonics Test		Reading Test		"r"
	Mean	S.D.	Mean	S.D.	
Consonant blend	9.00	-0.00	22.83	1.46	-0.000
Consonant digraph	7.83	0.37	10.50	1.26	0.889*
Vowel beginning	4.50	0.50	10.67	0.75	-0.447
Hard C-G	1.83	0.37	17.17	1.34	-0.277
Soft C-G	1.83	1.07	4.17	1.21	0.794**
Final E	3.67	1.70	14.33	2.43	0.512
Vowel digraph	8.33	1.37	7.17	1.46	0.387
Phonogram	6.50	1.12	24.17	1.77	-0.379
Controller	5.17	0.90	26.33	1.11	-0.896*
Silent Letter	2.33	0.75	4.33	1.11	0.067
Open syllable	6.67	1.25	17.00	3.06	0.612
Closed syllable	41.17	0.37	41.50	3.59	-0.187
Accent	22.83	1.86	56.00	2.00	0.313
Initial Con.	14.83	0.37	38.17	1.07	-0.349
Final Con.	14.83	0.37	33.17	1.07	-0.349
Syllab.	18.50	1.38	56.00	7.23	0.100

\* significant at the .01 level

\*\* significant at the .05 level





on a particular phonic principle on the Phonics Test tended to make a very low score on the corresponding item on the Reading Test, or a pupil who made a very low score on a particular item on the Phonics Test, made a very high score on a similar item on the Reading Test.

The scores of this group on the sections 'consonant blend', 'vowel beginning', 'hard C-G', 'initial consonant', and 'final consonant' were high, and standard deviations show that there was little range among scores on either section.

Table XXVII shows that correlations for the sections 'vowel beginning', and 'final consonant', and 'syllabication' were significant at the .01 level for the 'average-boys'; while the correlations of the sections 'controller', and 'closed syllable', were significant at the .05 level. Low correlations occurred for all other sections. High scores with small standard deviations were found for the principles 'consonant blend', 'consonant digraph', and 'initial consonant'. Low correlations were also found for these principles.

Table XXVIII shows that for the 'low-girls', a correlation significant at the .01 level occurred for the principle 'hard C-G'. There was little significant relationship between scores for each of the remaining principles. A negative correlation significant at the .05 level occurred for the principle 'silent letter'. This group ('low-girls') scored high on 'initial consonant', and the standard deviation shows there was little



TABLE XXVII

MEANS, STANDARD DEVIATIONS, AND CORRELATIONS OF SCORES ON  
SUB-SECTIONS OF PHONICS AND READING TESTS

Grade Seven

Average-Boys

N = 6

Subsection	Phonics Test		Reading Test		"r"
	Mean	S.D.	Mean	S.D.	
Consonant blend	9.00	-0.00	22.67	1.11	-0.000
Consonant digraph	8.67	0.47	10.67	1.11	0.746
Vowel beginning	4.33	0.94	10.50	0.76	0.926*
Hard C-G	1.83	0.37	17.84	0.69	-0.108
Soft C-G	2.67	0.47	4.33	1.11	0.213
Final E	3.83	1.34	16.17	0.69	0.572
Vowel digraph	8.33	1.60	6.83	1.07	0.326
Phonogram	6.17	1.46	22.83	1.86	0.744
Controller	6.17	1.21	26.17	2.34	0.812**
Silent Letter	2.17	0.69	3.67	0.75	-0.217
Open syllable	5.50	1.26	15.33	2.81	0.000
Closed syllable	39.83	5.64	42.83	4.74	0.853**
Accent	21.83	1.07	56.67	1.49	-0.244
Initial Con.	15.00	-0.00	39.00	-0.00	-0.000
Final Con.	14.83	0.37	33.50	1.71	0.917*
Syllab.	17.17	2.67	54.83	6.12	0.888*

\* significant at the .01 level

\*\* significant at the .05 level





TABLE XXVIII

MEANS, STANDARD DEVIATIONS, AND CORRELATIONS OF SCORES ON  
SUB-SECTIONS OF PHONICS AND READING TESTS

Grade Seven

Low-Girls

N = 6

Subsection	Phonics Test		Reading Test		"r"
	Mean	S.D.	Mean	S.D.	
Consonant blend	8.17	1.21	19.83	3.62	0.309
Consonant digraph	7.67	0.94	9.67	1.70	-0.173
Vowel beginning	3.83	1.07	10.50	0.76	-0.307
Hard C-G	1.50	0.76	16.00	1.91	0.912*
Soft C-G	2.67	0.47	3.50	1.38	-0.255
Final E	2.17	1.21	13.50	3.50	0.137
Vowel digraph	7.00	2.38	5.83	0.69	0.611
Phonogram	5.33	1.70	21.17	3.24	0.051
Controller	5.33	1.11	23.50	1.89	0.478
Silent Letter	1.83	0.69	3.83	0.69	-0.765**
Open syllable	6.17	2.91	13.50	2.99	0.431
Closed syllable	38.50	2.99	36.67	5.83	0.221
Accent	21.67	1.89	52.67	4.89	0.187
Initial Con.	14.33	0.47	38.17	1.46	0.403
Final Con.	14.67	0.75	30.33	3.05	0.638
Syllab.	16.50	2.57	41.17	11.16	0.422

\* significant at the .01 level

\*\* significant at the .05 level



discrepancy among the scores of the various pupils of the group. The scores on the 'open syllable' principle were low. The correlation of this latter principle was low though positive.

Table XXIX shows a correlation significant at the .01 level for the section 'soft C-G', and correlations significant at the .05 level for 'vowel digraph', and 'silent letter'. This table also shows that for the 'low-boys', the correlations of all other principles were low. All members of this group made high scores on the principles 'initial consonant', and 'final consonant'. A low negative correlation occurred for the 'open syllable' principle. Scores as indicated by the mean were also low for this principle. The scores of the Phonics Test show that the 'low-boys' used much of their phonic knowledge in sounding out the nonsense words of the Phonics Test but failed to use this knowledge when attacking the unfamiliar though real words of the stories.

#### SUMMARY OF DATA ON CORRELATIONS FOR THE GRADE SEVEN SAMPLE

The data for the Grade Seven sample showed that for the total group (36), a correlation significant at the .01 level was found between the total scores of the Phonics and the Reading Test. The sub-groups, 'high', 'average', and 'low' readers did not show as high a degree of relationship between scores though the correlation of the 'low group' was significant at the .01 level. Of the six sub-groups, 'high-girls', 'high-boys', 'average-





TABLE XXIX

MEANS, STANDARD DEVIATIONS, AND CORRELATIONS OF SCORES ON  
SUB-SECTIONS OF PHONICS AND READING TESTS

Grade Seven

Low-Boys

N = 6

Subsection	Phonics Test		Reading Test		"r"
	Mean	S.D.	Mean	S.D.	
Consonant blend	8.50	0.76	19.17	4.60	0.451
Consonant digraph	8.67	0.47	9.50	1.98	0.536
Vowel beginning	3.17	1.67	10.50	0.76	-0.456
Hard C-G	2.00	-0.00	16.33	1.70	0.000
Soft C-G	2.00	1.00	4.17	1.07	0.937*
Final E	2.00	1.63	14.00	3.70	0.663
Vowel digraph	6.67	2.69	5.50	1.71	0.835**
Phonogram	5.17	1.57	21.17	3.34	0.693
Controller	5.50	1.61	23.83	5.34	-0.107
Silent Letter	1.33	1.37	3.17	0.69	0.824**
Open syllable	5.67	1.60	15.50	1.26	-0.083
Closed syllable	37.17	6.57	37.50	7.68	0.550
Accent	22.67	2.13	49.17	13.74	0.616
Initial Con.	14.33	0.47	37.50	1.50	0.236
Final Con.	14.67	0.75	33.00	1.41	-0.316
Syllab.	15.83	3.13	45.17	15.42	-0.515

\* significant at the .01 level

\*\* significant at the .05 level



girls', 'average-boys', 'low-girls', and 'low-boys', the highest correlations occurred for the 'high-girls', and the 'average-boys'. These correlations were significant at the .01 level. A correlation significant at the .05 level occurred for the 'low-boys'.

The correlations for each of these sub-groups, however, were not as high for the separate phonic principles as they were for the total score. The pupils of the various groups did not use their knowledge of phonic principles to the same degree in sounding out the words of the Reading Test.

Table XXX is prepared similar to Table XIX, and gives an overall view of the degree to which these sub-groups used their knowledge of the individual phonic principles in an actual reading situation.

The data of this table show that there are many differences between groups in their degree of application of phonic principles. In general there was little relationship between the application of the various phonic principles to an actual reading situation by any of the groups. For all groups, high scores were made on the 'initial consonant' principle, and there was little discrepancy among scores. A significant correlation for the principles 'consonant blend', 'phonogram', and 'accent' never occurred for any of the groups. Correlations of the principles 'open syllable' and 'closed syllable' were significant only at the .05 level.





TABLE XXX

## CORRELATIONS OF THE PHONIC PRINCIPLES FOR THE VARIOUS SUB-GROUPS -- GRADE SEVEN

Principle	High	Average	Low	High		Average		Low	
				Girls	Boys	Girls	Boys	Girls	Boys
Consonant blend	OH	OH		OH	OH	OH	OH		
Consonant digraph	OH	**		OH	OH	*	OH		
Vowel beginning	OH	OH		OH	OH	OH	*		
Hard C-G	OH	OH	**	OH		OH		*	
Soft C-G		**		**		**			*
Final E				OH					**
Vowel digraph	*		*		**				**
Phonogram									
Controller				OH		*	**		**
Silent Letter	*					-		**	OL
Open Syllable	OL	OL	OL	**	OL		**	OL	OL
Closed Syllable		**							
Accent									
Initial Consonant	OH	OH	OH	OH	OH	OH	OH	OH	OH
Final Consonant	OH	OH	OH	OH	OH	OH	*		OH
Syllabication	**			**	**		*		

\* significant at the .01 level

\*\* significant at the .05 level

(blank space) no significant correlation

OH no significant correlations; all scores high

OL no significant correlations; all scores low



The only semblance of any pattern between groups was found for the principle 'vowel digraph'. The correlations of this principle was significant at the .01 level for the 'high', and the 'low' groups, and at the .05 level for the 'high-boys', and 'low-boys'.

#### DIFFERENCES BETWEEN MEANS ON THE PHONICS TEST FOR GRADE THREE AND GRADE SEVEN PUPILS

Table XXXI shows the means, standard deviations, and "t's" for the total score, and for the score of each section of the Phonics Test, for the Grade Three and Grade Seven pupils used in this study. The degree of freedom throughout was 70.

The data of this table show that the differences between the means of the total scores, and between the means of each of the principles 'soft C-G', 'closed syllable', 'accent', 'final consonant', and 'syllabication' reached significance at the .01 level of confidence in favor of the Grade Seven sample. Differences significant at the .05 level of confidence also favoring this group were found for each of the principles 'consonant blend', 'consonant digraph', and 'initial consonant'. For all other phonic principles, the differences favored the Grade Seven pupils, though these differences were not significant.

On analysing the means and differences it is evident that though the differences between the principles 'initial consonant', and 'final consonant' were significant at the .05 and .01 levels respectively, the actual difference between the





TABLE XXXI

COMPARISON OF MEANS FOR TOTAL SCORE  
AND SUB-SCORES OF PHONICS TEST FOR  
GRADE THREE AND GRADE SEVEN

	Gr. III mean	Gr. VII mean	SD1	SD2	"t"
Total score	149.42	166.42	22.07	13.98	3.850*
Con. blend	8.06	8.75	1.51	0.68	2.482**
Con. digraph	7.69	8.39	1.54	0.73	2.415**
Vowel beginning	3.56	4.22	1.66	1.11	1.978
Hard C-G	1.72	1.86	0.51	0.42	1.251
Soft C-G	1.56	2.44	0.96	0.80	4.225*
Final E	3.08	3.33	1.53	1.65	0.656
Vowel digraph	6.75	7.81	2.43	2.04	1.974
Phonogram	5.75	6.11	1.52	1.61	0.965
Controller	5.36	6.00	1.83	1.33	1.670
Silent Letter	1.81	2.19	0.99	0.94	1.683
Open syllable	5.50	5.97	2.05	2.17	0.937
Closed syllable	35.61	40.06	6.95	4.30	3.219*
Accent	19.36	22.39	2.91	1.93	5.224*
Initial Con.	14.39	14.75	0.95	0.43	2.045**
Final Con.	14.17	14.83	1.24	0.50	2.958*
Syllab.	15.14	17.31	3.16	2.57	3.196*

\* significant at the .01 level

\*\* significant at the .05 level



means was not great. The significance stated was due to the fact that the standard deviation of each group was very small. Thus the scores of each group tended to cluster very closely around their respective means.

The differences found between the means of the sections 'soft C-G', 'consonant digraph', 'consonant blend', 'closed syllable', 'accent', and 'syllabication' were more discriminatory for the two grades. The high scores made by the Grade Seven pupils on the 'syllabication' principles helps explain why this group also made high scores on the 'closed syllable' principle. In order to pronounce 'closed syllables' correctly, the word must first be correctly syllabicated.

The Grade Three pupils experienced more difficulty than the Grade Seven pupils on principles involving more than one letter--'consonant blend', and 'consonant digraph'. For each of these principles the differences favoring the Grade Seven sample were significant at the .05 level. The difference between the means on the 'vowel digraph' principle was in favor of the Grade Seven sample. However, this difference was not significant.

In general the Grade Seven sample of this study had a far greater knowledge of phonic principles than did the Grade Three sample.

Since the intelligence quotient of the pupils of each grade was measured by different tests--The Detroit Advanced First Grade Intelligence Test, for the Grade Three group, and





the Laycock Mental Abilities Test, for the Grade Seven sample-- the means are not exactly comparable. Nevertheless assuming some reliability for both tests, a "t" was run on the means of each test for each grade. The table following shows the results.

TABLE XXXII

MEANS, STANDARD DEVIATIONS, AND "t's" SHOWING DIFFERENCES  
BETWEEN INTELLIGENCE QUOTIENT SCORES OF  
GRADE THREE AND GRADE SEVEN

	Mean	S.D.	"t"
Grade Three	123.33	7.96	0.984
Grade Seven	116.40	23.40	

The "t" favored the Grade Three sample though it was not significant. The Grade Seven sample not only had a lower mean intelligence quotient than the Grade Three sample, but also a larger standard deviation, thus indicating a wide range within the scores of this sample.

### Summary

Comparison of the means of the Grade Three and Grade Seven pupils on the total phonics score, and on the scores of



each principle shows that the Grade Seven pupils had a much greater knowledge of all phonic principles than did the Grade Three pupils. Nevertheless, the Grade Three pupils used a higher percentage of their knowledge in sounding out unfamiliar words, as compared with the Grade Seven sample.

Though different intelligence tests had been administered to the pupils of each grade, a "t" was run on the resulting mean scores. A difference was found favoring the Grade Three sample, though this difference was not significant.

#### ERROR SCORE

Table XXXIII shows the "error score" for Grade Three on the "accent section" of the Phonics Test, while Table XXXIV reveals the errors made on the Reading Test.

Table XXXIII shows that for the Grade Three sample the most common type of error made on the "accent section" of the Phonics Test was one of substitution of letters and syllables within words. This was also the most common type of error made by the 'high', and 'low' sub-groups. The 'average group' of readers made about the same number of errors of 'substitution' and 'addition'. Boys normally made more errors than the girls, and the group of 'low readers' made more errors than the 'higher groups'. The 'high group' however, made more errors than the 'average group'.





TABLE XXXIII

ERROR SCORE      PHONICS TEST\*

Grade Three

N = 36

	Omiss.	Subst.	Addit.	Syll.	Total
Total group	27	106	89	50	272
High group	6	32	22	16	76
Average group	6	21	22	16	65
Low group	15	53	45	18	131
High-girls	2	18	6	9	35
High-boys	4	14	16	7	41
Average-girls	4	8	7	6	25
Average-boys	2	13	15	10	40
Low-girls	4	32	23	9	68
Low-boys	11	21	22	9	63

\* The "Error Score" on the Phonics Test  
 was calculated for the "Accent Section"  
 only.



TABLE XXXIV

ERROR SCORE      READING TEST

Grade Three

N = 36

	Omiss.	Subst.	Addit.	Exagg.	Total
Total group	14	63	79	6	162
High group	8	23	26	1	58
Average group	2	20	27	3	52
Low group	4	20	26	2	52
High-girls	4	14	11	0	29
High-boys	4	9	15	1	29
Average-girls	1	12	16	2	31
Average-boys	1	8	11	1	21
Low-girls	3	10	10	1	24
Low-boys	1	10	16	1	28





Table XXXIV shows that the Grade Three sample made most errors of the 'addition' type on the Reading Tests. This trend was also found to hold true for each of the sub-groups, though the discrepancy in the number of errors of 'substitutions' and 'additions', for each group, was not great. The group of 'high readers' made slightly more errors than either the 'average' or the 'low groups', who each made the same number. The girls as a group, made more errors than the boys.

Table XXXV shows that on the Phonics Test the most common type of error made by the Grade Seven sample was one of 'syllabication'. This was especially so for the 'high group', who made twenty-nine errors of this type compared to seven of all other types of error made. The 'low group' made more errors of 'addition' than of 'syllabication'. The girls as a group made more errors than the boys.

Table XXXVI shows that like the Grade Three sample, the Grade Seven sample made most errors of the 'addition type' on the Reading Test. This trend was found to hold true for the sub-groups, except for the 'high-boys', who made more errors of the 'substitution' type. On the Reading Test the 'low group' made twice as many errors as either of the other two groups. The low group, and especially the boys of this group made a greater attempt in attacking unfamiliar words but in so doing made many errors particularly of the 'addition' type--thirty-eight



TABLE XXXV

ERROR SCORE      PHONICS TEST\*

Grade Seven              N = 36

	Omiss.	Subst.	Addit.	Syllab.	Total
Total group	9	40	58	86	193
High group	0	3	4	29	36
Average group	4	15	16	32	67
Low group	5	22	38	25	90
High-girls	0	1	1	15	17
High-boys	0	2	3	14	19
Average-girls	2	7	7	18	34
Average-boys	2	8	9	14	33
Low-girls	3	13	24	14	54
Low-boys	2	9	14	11	36

\* The "Error Score" on the Phonics Test was calculated  
for the "Accent Section" only.





TABLE XXXVI

ERROR SCORE      READING TEST  
 Grade Seven      N = 36

	Omiss.	Subst.	Addit.	Exagg.	Total
Total group	57	60	67	0	184
High group	11	14	8	0	33
Average group	20	11	13	0	44
Low group	26	35	46	0	107
High-girls	1	5	2	0	8
High-boys	10	9	6	0	25
Average-girls	10	5	5	0	20
Average-boys	10	6	8	0	24
Low-girls	22	22	8	0	52
Low-boys	4	13	38	0	55



compared to seventeen of all other types of error made. The boys of the Grade Seven sample made more errors on the Reading Test than did the girls.

#### Summary of "error scores"

In general the most common type of error made by each grade on the Reading Test was of the 'addition' type, whereas the type of error on the Phonics Test, varied with the grade. Girls in general made more errors of 'substitution' whereas the boys made more in the 'addition' category. The 'low group' also made more errors of the 'addition' type, while the 'high group' made more of 'substitution'.

The latter finding bears out a previous statement that the 'high readers' did not always take time to scrutinize the word, but instead made a quick guess which frequently resulted in the substitution of a familiar word. The 'average' and the 'low readers', and especially the latter group attacked the word piecemeal. However the members of this group did not always see the word constituted of its proper syllables and often tended to elaborate each letter or two into a syllable. It was for this reason a high 'addition' error score resulted.

#### COMPARISON OF CORRELATIONS OF TOTAL SCORES OF PHONICS AND READING TESTS FOR THE TOTAL GROUPS AND SUB-GROUPS--GRADE THREE AND GRADE SEVEN

Though no statistical analysis was made of the difference between correlations of the Phonics and the Reading Test scores





for the Grade Three and Grade Seven pupils, Table XXXVII gives some indication of any differences that occurred.

The correlations for the total group ( $N = 36$ ) of each grade were significant at the .01 level of confidence. The correlation for the Grade Three sample, however, was higher than that for the Grade Seven sample.

The correlations for the 'low-group' of each grade were significant at the .01 level, though again a higher correlation was found for the Grade Three sample. For the 'high', and 'average groups' of Grade Three, correlations significant at the .01 level occurred, whereas for the corresponding groups of the Grade Seven sample, the correlations reached significance at the .05 level.

For the sub-groups, 'average-girls', 'average-boys', 'low-girls', and 'low-boys' of the Grade Three sample, correlations were significant at the .01 level, while for the 'high-boys', the correlation was significant at the .05 level.

Correlations significant at the .01 level occurred for the sub-groups 'high-girls', and 'average-boys' only, of the Grade Seven sample. A correlation significant at the .05 level was found for the 'low-boys'. The correlations for the remaining sub-groups of Grade Seven were not significant.

The correlations of the individual phonic principles varied according to the principle. Correlations significant at the .01 level occurred for the Grade Three sample for the



TABLE XXXVII

COMPARISON OF CORRELATIONS OF TOTAL SCORES OF PHONICS AND READING TESTS FOR THE TOTAL GROUPS AND SUB-GROUPS --GRADE THREE, GRADE SEVEN

Group		Grade Three "r"	Grade Seven "r"
Total group	(36)	0.926*	0.810*
High group	(12)	0.783*	0.668**
Average group	(12)	0.812*	0.668**
Low Group	(12)	0.896*	0.789*
High-girls	(6)	0.439	0.888*
High-boys	(6)	0.800**	0.266
Average-girls	(6)	0.957*	0.469
Average-boys	(6)	0.916*	0.935*
Low-girls	(6)	0.870*	0.736
Low-boys	(6)	0.938*	0.830**

\* significant at the .01 level

\*\* significant at the .05 level





principles 'consonant blend', 'consonant digraph', 'soft C-G', 'final E', 'phonogram', 'controller', 'closed syllable', 'accent', 'final consonant' and 'syllabication'. Correlations at this significance occurred for the Grade Seven sample for the principles 'consonant blend', 'soft C-G', 'final E', 'vowel digraph', and 'closed syllable'. Correlations significant at the .05 level were found for the principles, 'hard C-G', and 'vowel digraph' for the Grade Three sample, and for the principles 'consonant digraph', 'hard C-G', 'silent letter', 'open syllable', and 'final consonant' for the Grade Seven sample.

Twice as many correlations between the sub-sections of the Phonics Test significant at the .01 level occurred for the Grade Three sample as compared with the Grade Seven sample. However, the number of correlations significant at the .05 level was greater for the Grade Seven pupils than it was for the pupils of Grade Three.

#### SUMMARY OF FINDINGS

Both the Grade Three and the Grade Seven sample of this study used much of their phonic knowledge in sounding out words in an oral reading situation. The correlation of the total Phonics and Reading scores for both grades was significant at the .01 level. The correlation coefficient for the Grade Three sample, however, was higher than that for the Grade Seven group.



More of the sub-groups of Grade Three than of Grade Seven showed significant correlations of the Phonics and Reading scores. The correlations for all of the sub-groups of the Grade Three sample except the 'high-girls', and the 'high-boys', were significant at the .01 level, while correlations significant at this level occurred only for the 'low-group' ( $N = 12$ ), 'high-girls', and 'average-boys' of the Grade Seven sample.

The correlations of the individual phonic principles varied by grade and by sub-group within each grade.

All pupils of both grades made high scores on the 'initial consonant' principle and there was little discrepancy among these scores. Low correlations occurred for this principle.

For the sub-groups of Grade Three, the correlation of the 'vowel digraph' principle was never significant, while no significant correlations of the principles 'consonant blend', 'phonogram', and 'accent' ever occurred for the sub-groups of the Grade Seven sample.





## CHAPTER V

### CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

This study attempted to ascertain the degree of phonic knowledge attained by Grade Three and Grade Seven pupils, and to determine the extent to which this knowledge of phonics is used by these pupils in sounding out words in an actual reading situation.

To determine the amount of phonic knowledge possessed by the pupils of the above mentioned grades, a phonics test, based on the Boyd Test of Phonetic Skills was prepared by the investigator. This test was designed to test a child's knowledge of phonics in sixteen separate areas, including syllabication and accent.

To determine whether this knowledge of phonics was actually being used by the children in attacking unfamiliar words in a reading situation, two stories for each grade were constructed by the investigator. The phonic principles in the words in the story were broken down into sixteen sections in a one to one correspondence with the sections on the Phonics Test.

In this study certain hypotheses have been formulated with regard to the use of phonic knowledge by Grade Three and Grade Seven pupils. These hypotheses have been tested and statistical data support what appear to be valid conclusions.



## CONCLUSIONS

## HYPOTHESIS I

There is no relationship between a knowledge of phonics as measured by a Phonics Test and the application of this knowledge to an actual reading situation for:

- (a) a group of thirty-six Grade three pupils.
- (b) high, average, and low reading achievers of this group.
- (c) boys, and girls of the three sub-groups.

(a) This hypothesis was rejected for the total Grade Three group for the total scores. A significant relationship between the total scores on the Phonics and the Reading Test was found for this group.

It must be remembered however, that the same degree of a relationship was not always found for the separate phonic principles. Of the sixteen principles tested, the Grade Three pupils made significant use of ten in attacking the words of the oral reading test. These ten principles were 'consonant blend', 'consonant digraph', 'soft C-G', 'final E', 'phonogram', 'controller', 'closed syllable', 'accent', 'final consonant', and 'syllabication'. A knowledge of the principles 'hard C-G', and 'vowel digraph', was also used but to a less degree than the principles stated above. It cannot be concluded from the correlation coefficients of the principles, 'initial consonant', and 'open syllable', whether a knowledge of these principles was used in unlocking the pronunciation of unfamiliar words, as there was little discrepancy among the scores on these items





for the various pupils of the sample. The test failed to discriminate among scores of high, average, and low readers on these principles. All scores on the 'initial consonant' were high. It seems as if, at this grade level, all pupils were thoroughly familiar with this principle, and experienced little difficulty in sounding out the beginning consonants of words.

The scores for all pupils were low on the 'open syllable' principle. This may indicate that the Grade Three pupils were not familiar with a knowledge of this principle and did not use it in sounding out unfamiliar words. According to Clymer (14) this principle has a fairly high degree of utility. In his study, Clymer analysed words containing a single vowel at the end of the word, for example, "no". He found that the generalization stating that such a vowel had a long sound applied seventy-four per cent of the time. Yet pupils of this study made very low scores on this item for they tended to give such a vowel a short vowel sound.

The Phonics Test also tested multisyllabic nonsense words which contained syllables ending in a vowel, for example, 'hogam'. The words on the Reading Test in which the open syllable was to be applied, were all multisyllable. It may have been that the application of this principle to multisyllabic words has a low degree of utility. Clymer (14) did not analyse such words in his study. It must be remembered



that the application of the 'open syllable' principle within multisyllabic words depends first upon the correct syllabication of the word. However, this does not seem to be a factor causing low scores here as this sample scored fairly high on syllabication principles both in the Phonics and in the Reading Test situation.

Low correlations occurred for the principles 'vowel beginning', and 'silent letters'. The low correlation of the 'vowel beginning' principle does not necessarily indicate that the pupils were not using their knowledge of this item in sounding out words. On the contrary, the scores for this principle on the real words of the Reading Test were very high. This group used this principle in sounding out the words on the Reading Test, over ninety per cent of the time. However they did not always use this principle to the same degree with the nonsense words on the Phonics Test and thus low correlations resulted. It seems as if this group was much more adept at applying this principle to real words than to nonsense words. This finding is similar to that reported in a study by Templin (59). She found that poor readers tended to score better on principles in real words than in nonsense words.

According to Clymer's study (14), the 'silent letter' in letter combinations such as "ght, kn, and wr" hold true in all cases. It thus appears that the children in Grade Three sample did not apply their knowledge of this principle to the





words of the story. It must be noted however that the number of examples on the Phonics Test, testing this principle was small.

In general, it appears that the Grade Three pupils as a group applied much of their knowledge of phonic principles in sounding out unfamiliar words in an oral reading situation. This finding however, is similar to findings reported by Tiffin and McKinnis (60), and by Rudisill (50). Unlike these and previous studies, this study did not look only at the total scores but at the application of the individual phonic principles that made up the total score. This analysis has shown that the pupils of Grade Three sample applied their knowledge of most of the sixteen phonic principles, including 'syllabication' and 'accent'.

(b) The hypothesis was rejected for each of the sub-groups of 'high', 'average', and 'low' readers with reference to the total scores of the Phonics and the Reading Test. There was a significant relationship between the scores for each of the above mentioned groups.

The means of the scores on the Reading Tests indicate that the pupils of the 'low' group applied much more of their phonic knowledge to the reading situation than did either of the other groups. However, they had less knowledge to apply than did the other groups. It was mentioned previously in this study that the 'low readers' tended to be very meticulous in



their word attack. Consequently they succeeded in applying many of the phonic principles, though they usually had a high error score as well.

It cannot be concluded that all the readers in the 'low group' were retarded in reading. However, if it is agreed that a reader in Grade Three who reads at a grade level one to one and a half years below his normal grade is a retarded reader, then some of the pupils of this group fit this category. On this basis, the findings of this study do not agree with those of a study by Watkins. She concluded:

Retarded readers seem to possess more phonetic knowledge than the normal-progress group, but the retarded readers do not apply this knowledge (62, p. 644).

Though the 'low readers' utilized much of their phonic knowledge in the oral reading situation, their scores on the phonic principles were not high. This will be further explained when the use of individual phonic principles in sounding out words is discussed.

Aaron (1) and Currier (17), in separate studies found that individual differences have a profound effect on the amount of phonic knowledge attained by pupils and its relationship to reading achievement. However, these authors looked at individual differences in terms of pupils only, and not in terms of phonic principles. This study looks at both. Each of the three groups used a high degree of knowledge of three phonic principles in sounding out the words of the oral reading





situation. The 'closed syllable principle' was used considerably by all groups in their word attack. This principle is among some of the first phonic principles taught and it may be regarded as one of the basic ones in sounding out words, if it is agreed that most words involve 'closed syllables'. Though the correlation of this principle was high, the means of scores show that the low group scored much lower on this principle in comparison with the other groups. The means for the 'low', 'average', and 'high groups' on this principle were respectively 29.17, 37.58, and 40.08. The application of the 'closed syllable' principle depends considerably on the ability to syllabicate words. It can be concluded from the findings of this study that a definite relationship exists between the 'closed syllable' principle and 'syllabication', for the range of the means of the 'syllabication' principles is very similar to that for the 'closed syllable' principle.

The results of this study have also shown that a high relationship may exist between phonic knowledge and reading achievement. Such a relationship was reported in studies conducted by Harrington and Durrell (33), and by Rudisill (50). These investigators found a higher relationship between phonics and reading than between reading and mental age.

In this study the findings show that there was very little difference between the mean intelligence quotients of the three groups of reading achievers. The means of the Phonics



Test reveal a difference in the amount of phonic knowledge attained by each of these groups. Consequently a knowledge of phonics rather than intelligence appears to be one of the distinguishing factors between 'good' and 'poor' readers at this grade level. It may be concluded that pupils who for some reason or other (not necessarily low intelligence) do not master the basic phonic principles, experience difficulty at a later date in sounding out unfamiliar words which they meet in their reading.

(c) The means and correlations for the sexes show even more forcefully the effect of individual differences on phonic knowledge and its application to reading. With reference to the total scores, the 'average-girls', 'average-boys', 'low-girls', and 'low-boys' showed a significant relationship between phonics and its utilization in word attack. The 'high-boys' did not show as significant a relationship as did the above groups, while no significant occurred for the 'high-girls'.

Once again it must be remembered that a look at total scores often gives false impressions. An analysis of the means and standard deviations show that the main reason for the absence of a significant correlation for the 'high-girls' was due to the fact that this group scored extremely well on over half the phonic principles. Thus this group seems to be thoroughly familiar with a number of phonic principles and experienced no difficulty in using such principles to sound





out unfamiliar words. The 'low-boys' on the other hand made considerable use of their knowledge of four phonic principles in their reading, yet they made low scores on most principles. For this latter group, the scores on the principles 'final E', 'phonogram', and 'open syllable' were low for all pupils, and no generalization about transfer could be drawn.

The girls varied widely in their application of phonic principles. The boys appeared to be more consistent and there was little difference between the boys of either group in their application of phonic knowledge to an actual reading situation.

The means of the scores on the Reading Test indicate that as a group, the boys utilized phonics more than the girls. It is generally stated that girls do better than boys in academic work. However, no study was found which had compared boys and girls on the degree to which they used phonic knowledge in reading situations.

### Summary

In general this study has shown that the Grade Three sample made considerable use of its phonic knowledge in attacking words in an oral reading situation. This is similar to conclusions drawn from other studies. However, this study unlike other studies, looked not only at total scores for total groups, but also scores on separate phonic principles for groups of different reading achievers divided according to sex. Whereas



other studies have shown that a high correlations existed between phonic and reading scores, the findings of this study allow one to conclude that a knowledge of particular phonic principles is important in word attack. The 'initial consonant' and 'final consonant' principles were generally known by all pupils at the Grade Three level, and these were applied practically one hundred per cent of the time. Considerable variation existed for all other principles though it seems as if the 'closed syllable' principle was beneficial to all readers, and 'syllabication' principles were used to a considerable degree by the 'low readers'.

This study unlike others, has also shown that the Grade Three readers and especially the 'low readers' of this grade had attained little phonic knowledge. Since the 'low readers' utilized much of the phonic knowledge they possessed, it seems that a good phonics program designed to help pupils utilize their knowledge of principles in word attack, would be beneficial for such pupils.

#### HYPOTHESIS II

There is no relationship between a knowledge of phonics as measured by a Phonics Test, and the application of this knowledge to an actual reading situation for:

- a) a group of thirty-six Grade Seven pupils.
- b) high, average, and low reading achievers of this group.
- c) boys, and girls of the three sub-groups.





This hypothesis was rejected for the total Grade Seven sample with reference to total scores. There was a significant relationship between phonics and reading scores for this group. The correlation coefficient however was not as large as that for the Grade Three group. Tiffin and McKinnis (60), who worked with Grade Seven pupils also found a high correlation between phonic and reading scores. These authors dealt with total scores only. This study analysed the data for each of the phonic principles tested to determine the degree of application of individual principles to an oral reading situation.

Such an analysis revealed that this sample made considerable use of six principles in attacking the pronunciation of unfamiliar words, compared to a significant use of ten such principles by the Grade Three group. The principles most used by the Grade Seven sample were 'consonant blend', 'soft C-G', 'final E', 'vowel digraph', 'closed syllable', and 'syllabication' principles. It appears that the 'closed syllable' and the 'syllabication' principles are two of the key principles in pronouncing words. A knowledge of the principles 'consonant digraph', 'hard C-G', 'silent letter', and 'open syllable' was used by this group but to a less degree than the principles stated above.

The low correlations of the principles 'vowel beginning', 'phonogram', 'initial consonant', and 'final consonant' do not necessarily indicate that these principles were not applied by



this sample in their oral reading. On the contrary the scores of these principles on both tests were very high with little range among the scores on each principle. The pupils at the Grade Seven level were thoroughly familiar with these principles and when confronted with such principles, experienced no difficulty in using them to sound out words. These four principles are all involved in the initial and final positions of words. It thus appears that pupils at the upper elementary level have little difficulty with such word beginnings and endings.

Low correlations occurred for the principles 'controller' and 'accent', thus indicating that a knowledge of these principles was little used by the Grade Seven sample in their reading.

A low correlation for the 'controller' did not necessarily mean that this item was not used by the pupils in their word attack. The means show that this principle was applied to the real words of the story to a much greater degree than to the nonsense words of the Phonics Test. Clyner (14) found this principle to be applicable seventy-eight per cent of the time. It may have been that the pupils were not too familiar with this principle for they consistently gave the vowel a long sound. The fact that on the Phonics Test, this principle was only tested in the final position of words, may have had some effect on the results.





There was also a low correlation for 'accent generalizations'. This may be explained by the fact that only two-syllable nonsense words were tested on the Phonics Test. Most of the words on the Reading Test were more than two syllables. It thus seems that the Grade Seven sample knew some of the basic rules of accent, but not the rules for words of more than two syllables.

It may be concluded that the Grade Seven pupils utilized some of their phonic knowledge in attacking words in an oral reading situation, though not to the same degree of significance as the Grade Three group.

The pupils at this grade level were very familiar with the sounds of the beginning and ending principles of words and the scores of the Reading Test show that they used them considerably in sounding out real words. According to the results of this Test, these pupils did not appear to possess a high degree of knowledge of 'accent principles' generally taught beyond the Grade Three reading program.

(b) The test scores for 'low readers' showed a significant relationship between a knowledge of phonics and its application to reading. Thus the hypothesis was rejected for this group. The relationship of phonics and reading was somewhat lower for the 'high', and 'average readers'. As stated previously, in order to understand better the exact nature of the relationship between phonics and its application



to reading it is necessary to analyse each of the phonic principles separately.

Though a significant correlation occurred between total reading and phonic scores for the 'low readers', the data show that for the individual principles, a high correlation occurred only for the 'vowel digraph' principle. This latter principle plus a knowledge of 'silent letters' was used significantly by the 'high group', while the use of neither principle reached significance for the 'average group'. The scores on the principles 'initial consonant', 'final consonant', and 'vowel beginning' were high for all members of these three groups, and the standard deviations indicate there was very little range within the scores. This finding is similar to that for the sample as a whole. All pupils seem to experience little difficulty in sounding 'initial' and 'final consonants', and 'vowel beginnings'.

(c) The correlations show there was a significant relationship between phonics and reading scores for the 'high-girls', and the 'average-boys'. For these groups, the hypothesis was rejected. The significance of the relationship for the 'low-boys' was not as great while no degree of significance occurred for the 'high-boys', 'average-girls', and 'low-girls'.

The means and correlations of the various phonic principles show that the sub-groups differed considerably in their degree of application of these principles. As has been





found for the Grade Three sample, the 'high group' and especially the 'high-girls' scored very high on several principles, particularly those dealing with the beginnings and endings of words. The 'low-boys' and 'low-girls' of this sample did not score highly on such principles except for 'initial consonant'.

Of the six sub-groups, the scores of the 'average-boys' showed the highest degree of relationship between a knowledge of phonics and its application to an oral reading situation. The boys as a group applied more of their phonic knowledge in attacking unfamiliar words. This agrees with the findings for the Grade Three sample.

### Summary

The Grade Seven sample of this study possessed considerable knowledge of phonic principles as indicated by the scores on the Phonics Test. However, they did not use this knowledge in their word attack to the same extent as did the Grade Three pupils. The principles governing the beginning and ending of words were usually known by this group except for the 'low-boys', and 'low-girls'. The boys and girls of the 'low readers' experienced much difficulty in sounding out the endings of words. This may be a matter of syllabication for it seemed as if the difficulty lay not so much in the association of appropriate speech sound and symbol, but in isolating the ending for this purpose. The examiner noted that the 'low



readers' tended to pronounce the first syllables of the word, but then either made a guess at the remaining syllables or else added extra syllables. This could also be due to a lack of training in perception for the pupil must be aware of the particular letters of a word before he can attempt to divide it into syllables. Gates (26) stressed training in perception as an aid in seeing the similarities and differences in words.

The Grade Seven sample did not seem to be aware of rules of accent taught beyond the Grade Three program, and consequently had difficulty in accenting correctly the words of the story.

In general it seems as if pupils from both grades showed some degree of relationship between a knowledge of phonic principles and the application of this knowledge to an oral reading situation. Though the Grade Seven sample had a much greater knowledge of phonic principles than the Grade Three group, they did appear to apply this knowledge to the same extent as did the Grade Three pupils. This conclusion however, relates only to the total scores on the Phonics and the Reading Test. The relationship between the scores of the various phonic principles used in sounding out the items of the Phonics and the Reading Test varied with the sub-group and with the phonic principle involved.

The boys of both grades made more use of their phonic knowledge than did the girls. Intelligence does not seem to be





a factor in the amount of phonic knowledge attained. It may however, be a factor in the application of this knowledge. The former statement appears valid in the light of the results of the Grade Three study which showed that there were wide variations in the amount of phonic knowledge of the three groups of readers though there was little difference between their mean intelligence quotient scores. That intelligence may be a factor in the application of this knowledge is evident from the results of the Grade Seven sample where the 'high-girls', and 'average-boys' showed the highest relationship between phonics and reading. These two groups had the highest mean intelligence quotients of all sub-groups.\*

### HYPOTHESIS III

There is no significant difference between the mean scores on the Phonics Test for the Grade Three and Grade Seven pupils.

This hypothesis was rejected. Significant differences favoring the Grade Seven sample were found between the total scores, and the scores of nine sub-sections. The difference between the scores of each of the remaining principles was in favor of the Grade Seven pupils though these differences were not significant.

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\* See Appendix K.



According to the results of the Phonics Test, it appears that the Grade Seven pupils know more about phonics than did the Grade Three sample. Since the formal phonics program usually ends in Grade Three, it appears as if the knowledge attained at this level has been maintained and reinforced throughout the elementary grades. This seems likely for a number of reasons. The Guidebooks for the Curriculum Foundation and Ginn Basal Reading Series indicate that most of the phonic principles taught in reading are dealt with by the end of Grade Three. The scores on the Reading Test used in this study show that the Grade Seven pupils did not know the 'accent generalizations' usually taught beyond the primary level. The correlations indicate there was little relationship between scores on corresponding sections of both tests. It is quite probable that many of these principles were learned incidentally beyond the Grade Three level, for many of them dealt with the beginnings and endings of words. Many occasions arise in the elementary grades where pupils have an opportunity to make the proper sound-letter(s) associations.

Three of the principles on which very significant differences were found favoring the Grade Three sample were 'closed syllable', 'syllabication', and 'accent' (of two syllable words). No doubt some formal training is usually given in the use of each of these principles through the elementary grades, but facility in using these would be helped greatly by experience alone.





It does appear that the acquisition of a knowledge of phonic principles cannot be left to chance in the primary grades. This statement is supported by the results of the Grade Three sample. Though there was practically no difference between the mean intelligence quotients of the three achievement groups, the scores of the 'low readers' indicated very little knowledge of phonics as compared with the other groups. It thus seems that a systematic program must be arranged for the teaching of phonics in the primary grades. This is not in complete agreement with the findings of a study conducted by McDowell (40) with fourth graders. He found that pupils who had missed the first five months of phonic training were at no disadvantage compared to pupils who had had the full program. He concluded that the phonic program was not accomplishing the results it was said to accomplish. However, he did not clearly define his "phonetic method." Also it is not known what phonic principles the 'low readers' of the Grade Three sample in this study missed over a three year period.

#### Summary

No other study was found which looked at the differences between two grades in the amount of phonic knowledge attained. Thus this study has shown that pupils at the beginning of Junior High School know many more phonic principles than do the pupils at the end of the primary program. The greatest difference was found between the scores of the low readers of both grades.



### Error Score

It has been previously stated that an "error score" was calculated for both grades on the Reading Test and on the "accent section" of the Phonics Test. The Grade Three pupils made most errors--272 compared to 193 for the Grade Seven sample.

The pupils of the Grade Three sample tended to substitute letters or syllables within the nonsense words of the 'accent section' of the Phonics Test, while the Grade Seven pupils were inclined to err in breaking the nonsense words into syllables. This latter error was most common where the first syllable ended after the first vowel, for example, 'hogam'. The number of errors of this type however, was not great--an average of two errors per pupil.

The pupils of both grades made most errors of 'addition' of letters or syllables on the Reading Test. This was closely followed by 'substitution' errors. The 'high readers' generally made more errors of 'substitution', while the 'low readers' erred most in the 'addition' category. An explanation for this was given previously when it was stated that the 'high readers' tended to read rapidly with attention to content and occasionally substituted a familiar word for the word given, whereas the 'low readers' tried to sound each word, and in so doing added extra syllables.





The Grade Seven pupils as a group were more inclined to read for content than were the Grade Three pupils. The examiner observed that the members of the latter sample made a much greater effort in attempting to syllabicate the words. They seemed to be more conscious of sounding out the words and made a number of exaggeration errors, that is, overemphasizing the pronunciation of separate syllables. The Grade Seven sample made no errors of this latter type.

The 'low groups' from both grades made more errors than did the other groups. There was no consistency in errors made on either the Phonics or the Reading Test by sexes of both grades.

Thus pupils could apply phonic principles in sounding out the words of the Reading Test but still not arrive at the correct pronunciation of a word. If pupils are to give the correct pronunciation of words, then the application of phonic principles must be free from errors. For example, by applying the 'final E' principle the word "impede" may be pronounced as "impete." An error could be due to a number of causes. From test observations it seems quite probable to assume that many of the errors made (as discussed above) could have been avoided if the pupils had been well trained in perception, especially in seeing likenesses and differences in words.



## IMPLICATIONS AND RECOMMENDATIONS

1. The application of phonic principles does not always give the correct pronunciation of a word, even though the word may contain phonic elements to which the principles apply. Pupils often err in perceiving the letter and letter combinations that make up the word. Teachers should give pupils considerable training in perception, especially in noticing likenesses and differences in word forms.
2. The scores of the 'low readers' of both grades and especially of Grade Three showed a high correlation occurred between phonic knowledge and its application to reading than for either of the other two groups. However the amount of phonic knowledge attained by these readers and especially those of Grade Three was not great. The 'low readers' in Grade Three scored sixty per cent of the possible score. Thus teachers might give such readers extra help in mastering phonic principles and in applying these principles to sounding out unfamiliar words.
3. The findings of this study imply that factors other than intelligence interfere with a pupil's mastery of phonic principles. Teachers would do well to test at regular intervals in the primary grades for the amount of phonic knowledge attained by the pupils and the extent to which they apply this knowledge in attacking words in an actual reading situation. Thus weaknesses in such knowledge may become apparent at an





early date and teachers could then plan corrective measures.

4. Some phonic principles, especially 'initial consonant', 'vowel beginning', and 'final consonant' are known by nearly all pupils at the end of Grade Three. Little difficulty is experienced in using these principles in the pronunciation of words. Thus after this grade level teachers need spend less time on these principles and devote this time saved to the teaching of other principles more difficult to master, for example, 'syllabication principles'.

5. Individual differences should always be recognized in the teaching of phonics. The findings of this study showed that no trend or pattern was found to be common to the three reading groups or to the sexes. Pupils differ in the type and amount of help they need in word attack. Currier (17) emphasized the importance of individual differences in phonics as a result of a study conducted in 1923. She stated that "phonetic drill should at all times be employed with discretion and adapted to the needs of the individual child or special group." (17, p. 452)

6. The findings of this study showed that 'low readers' often ignore endings of words in their oral reading. Such readers might be given extra help in noting such word elements.

7. It follows from the above implication and from the study that one reason by 'low readers' do not pronounce the endings of words correctly is because they are not aware of the syllables



that make up the word. 'Low readers' need considerable practice in locating and sounding out the syllables of multi-syllabic words and in listening to such words being sounded out before they deal with such words in written form.

8. From observations during the test situation and from discussions with the pupils afterwards, it appeared that pupils often sound out the words of a passage fairly well yet do not derive any meaning from the material. Teachers should check on the comprehension aspect of reading as well as on the ability of pupils to sound out words correctly. It should also be noted that the correct pronunciation of a word often depends on content, for example, "permit", "bow". For this reason also, teachers should not ignore the comprehension aspect of reading.

9. Total scores on a phonics test often have little meaning for the teacher. This score may imply that the pupils either know or do not know a considerable amount of phonics. However to understand fully the difficulties children may experience in word attack, an analysis of the scores of the individual phonic principles and the degree to which these principles are applied in sounding out unfamiliar words, is necessary.

#### LIMITATIONS OF THE FINDINGS

1. Though the sample used in this study was randomly selected, it was limited to one Edmonton Public School.





Consequently generalizations from the findings should be applied with caution to populations other than the one from which the sample was drawn.

2. A sample of thirty-six pupils from each of two grades was tested in this study. Each grade sample was divided into three groups of twelve pupils each, and into six sub-groups of six pupils each. It is possible that the small numbers in a group may have affected the statistical analysis of the data for these particular groups.

3. There was not a sufficient number of examples on certain sections of the Phonics Test to test particular phonic principles. For example, the number of items testing the 'silent letter' was three. Thus the score derived from these sections may not have been an accurate measure of the pupils' knowledge of these particular principles.

4. On the Boyd Test of Phonetic Skills no distinction was made between certain phonic principles such as 'diphthong' and 'vowel digraph'. Both of these were classified as 'vowel digraphs'. Thus the conclusions of this study should be interpreted in terms of the definitions used.

#### RECOMMENDATIONS FOR FURTHER STUDY

1. It is recommended that this study be repeated using a larger sample from a number of schools.
2. There is a need for a better Phonics Test. A larger number of items are necessary to test some of the phonic principles



so that the score arrived at will be a fairly high estimate of the pupils' knowledge of these particular principles.

3. A study such as this might be conducted using pupils who have been taught by different phonic methods. Thus a decision might be about the degree to which phonic principles are used by pupils taught by different methods.

4. This type of study might be continued with a Grade XII class to determine the extent to which pupils at this grade level make use of different phonic principles in their reading.

5. On the results of such a study as this, those pupils who used little of their knowledge of phonics might be tested for auditory and/or sight defects to determine if a relationship exists between these factors and the ability to transfer phonic generalizations to an actual reading situation.

6. On the results of a study such as this an attempt might be made to discover why pupils use little of the phonic knowledge they possess to sound out words in an oral reading situation. Such factors as the nature of the context in which the words appear, and the length of the word might be considered.

7. A study might be attempted to determine if there is any relationship between Pupils' ability to verbalize phonic generalizations and their ability to apply such generalizations to actual reading situations.





## CONCLUDING STATEMENT

The correlations between scores on corresponding sections of the tests used in this study show that a relationship between phonic knowledge and the application of this knowledge occurred for the Grade Three and the Grade Seven pupils. The degree of correlation however, was not as great for Grade Seven as it was for Grade Three, even though the former sample possessed the greater amount of phonic knowledge. An analysis of the use of individual phonic principles also show that the Grade Three group made greater use of more principles than did the Grade Seven group. All pupils seemed to experience little difficulty with 'initial' and 'final consonants'.

It is hoped that the results of this study will show more clearly the need for critical evaluation in the teaching of phonics, and that teachers will regard phonics as "an aid" to help children unlock the pronunciation of unfamiliar words. Teachers should also be aware that a knowledge of phonic principles becomes "an aid" only when it is taught with this purpose in mind.



## B I B L I O G R A P H Y





## BIBLIOGRAPHY

1. Aaron, I. E. "The Comparison of Good and Poor Readers in Fourth and Eight Grades," The Journal of Educational Research, LIV (September, 1960), pp. 34-37.
2. Adams, Fay, Lillian Gray, and Dora Reese. Teaching Children To Read. New York: The Ronald Press Company, 1949.
3. Agnew, Donald C. "The Effects of Varied Amounts of Phonetic Training on Primary Reading," Duke University, Research Studies in Education, Number 5. Durham, North Carolina,
4. Bear, D. E. "Phonics For First Grade: A Comparison of Two Methods," Elementary School Journal, LIX (April, 1959) pp. 394-402.
5. Bedell, Ralph and Eloise S. Nelson. "Word Attack as a Factor in Achievement in the Elementary School," Educational and Psychological Measurement, XIV (September, 1954), pp. 168-75.
6. Beltramo, Louise. "An Alphabetical Approach to the Teaching of Reading in Grade One," Dissertation Abstracts, Volume XIV, Part 3 (1954), p. 2290.
7. Betts, Emmett A. Foundation of Reading Instruction. New York: American Book Company, 1950.
8. Betts, Emmett A. "Phonics: Practical Considerations Based on Research," Elementary English, XXXIII (October, 1956), pp. 357-71.
9. Bloomer, Richard H. "An Investigation of an Experimental First Grade Phonics Program," Journal of Educational Research, LIII (January, 1960), pp. 188-93.
10. Bloomfield, Leonard, and Clarence Barnhart. Let's Read-A Linguistic Approach. Detroit: Wayne State University Press, 1961.
11. Browne, Sister Dorothy M. Phonics as a Basis for Improvement in Reading. Washington, D.C.: The Catholic University of America, 1939, cited in P. A. Witty and R. A. Sizemore. "Phonics in the Reading Program: A Review and an Evaluation," Elementary English, XXXII (October, 1955), pp. 355-371.



12. Burrows, Alvina T. "What About Phonics?" Bulletin Number 57, Association for Childhood Education, Washington, D.C., 1951.
13. Buswell, G. T. "Non-Oral Reading: A Study of its Use in Chicago School," Supplementary Educational Monographs, Number 60, September 1945. Chicago: The University of Chicago Press.
14. Clymer, T. "Utility of Phonic Generalizations in the Primary Grades," Reading Teacher, XVI (January, 1962), pp. 252-8.
15. Conduct, G. N., and H. Ward. "Phonic Reading - A New Approach," Educational Review, VII (June, 1955), cited in Joyce M. Morris, "The Relative Effectiveness of Different Methods of Teaching," Educational Research, I (November, 1958), pp. 38-49, and (February, 1959), pp. 61-75.
16. Cordts, Anna D. "And It's All Known as Phonics," Elementary English, XXXII (1955), p. 411.
17. Currier, Lillian Beatrice. "Phonics and No Phonics," Elementary School Journal, XXIII (February, 1923), pp. 448-52.
18. Currier, L. B. and C. Duguid. "Phonics or no Phonics," Elementary School Journal, XVII (December, 1916), pp. 286-87.
19. Dolch, Edward W. Teaching Primary Reading, Champaign, Illinois: The Garrad Press, Publishers, 1960.
20. Ducker, Mabel Lucille. "The Present Status of the Teaching of Phonics as Shown by an Analysis of Eighteen Reading Manuals." Unpublished Master's Thesis, The University of Chicago, Chicago, cited in the Twenty-Fourth National Society for the Study of Education Yearbook, Part I. Bloomington, Illinois: Public School Publishing Company, 1925.
21. Durkin, Dolores. Phonics and the Teaching of Reading. New York: Bureau of Publications, Teachers College, Columbia University, 1962.
22. Durrell, Donald D. Improving Reading Instruction. Tarrytown-On-Hudson, New York: World Book Company, 1956.
23. Durrell, Donald D. et al. "Success in First Grade Reading," Journal of Education, (February, 1958), pp. 1-48.





24. Farinella, John Thomas. "An Appraisal of Teachers' Knowledge of Phonic Analysis and Structural Analysis." Unpublished Doctoral Thesis, The University of Connecticut, 1960.
25. Flesch, R. Why Johnny Can't Read. New York: Harper & Brothers, 1955.
26. Gates, Arthur I. New Methods in Primary Reading. New York: Bureau of Publications, Teachers College, Columbia University, 1928.
27. \_\_\_\_\_. "Teaching of Reading: Objective Evidence versus Opinion," Phi Delta Kappan, XLIII (February, 1962), pp. 197-205.
28. \_\_\_\_\_. "The Results of Teaching a System of Phonics," The Reading Teacher, XIV (March, 1961) pp. 248-252.
29. Gates, A. I. and D. H. Russell. "Types of Materials, Vocabulary Burden, Word Analysis, and Other Factors in Beginning Reading," Elementary School Journal, XXXIX (September, 1938), and XXXIX (October, 1938), pp. 27-35 and 119-128.
30. Gill, Edmund J. "Methods of Teaching Reading," Journal of Educational Pedagogy, II (1914),
31. Gray, William S. On Their Own in Reading. Chicago, Scott, Foresman and Company, 1960.
32. \_\_\_\_\_. "Reading IV: The Teaching of Reading," in C. W. Harris, (ed.), Encyclopedia of Educational Research, Third Edition, Macmillan, N.Y., 1960.
33. Harrington, Sister Mary J. and D. D. Durrell. "Mental Maturity versus Perception Ability in Primary Reading," Journal of Educational Psychology, XLVI (October, 1950), pp. 375-80.
34. Heilman, Arthur W. Principles and Practices of Teaching Reading. Columbus, Ohio: Charles E. Merrill Books Inc., 1961.
35. Huey, Edmund Burke. The Psychology and Pedagogy of Reading. New York: The Macmillan Company, 1912.





36. Jenkins, Frances. "The Development of a Meaningful Vocabulary and of Independence in Word Recognition," cited in The Twenty-Fourth Yearbook of the National Society for the Study of Education, Part 1. Bloomington, Illinois: Public School Publishing Company, 1925.
37. Lichtenstein, Arthur. "The Letter Sounds: A Reading Problem," Elementary English Review, XVII (January, 1940)
38. Linder, James A. G. "Systematic Phonics-Sight Vocabulary Building Compared with Additional Directed Reading in a Basal Reader: The Relative Effectiveness of Two Methods of Teaching Remedial Classes." Unpublished Doctoral Thesis, Michigan State University, 1962.
39. Love, H. D. "Experimental Phonics Program versus a Controlled Integral Reading Program," Journal of Developmental Reading, IV (Summer, 1961), pp. 280-82.
40. McDowell, Reverend J. B. "Report on the Phonetic Method of Teaching Children to Read," Catholic Educational Review, LI (October, 1953), pp. 506-519, cited in P. A. Witty and R. A. Sizemore. "Phonics in the Reading Program: A Review and an Evaluation," Elementary English, XXXII (October, 1955), pp. 355-371.
41. Mills, Robert E. "An Evaluation of Techniques for Teaching Word Recognition," Elementary School Journal, LVI (1956) pp. 221-25.
42. Morris, Joyce M. "The Relative Effectiveness of Different Methods of Teaching," Educational Research, Volume I (November, 1958), pp. 38-49 and (February, 1959), pp. 61-75.
43. Moura, Bernard P., and Eunice Smith. Better Reading and Spelling Through Phonics. San Francisco, California: Fearon Publishers, Inc., 1960.
44. Mulder, Robert L. and James Curtin. "Vocal Phonic Ability and Silent Reading Achievement: A First Report," Elementary School Journal, LVI (November, 1955), pp. 121-23.
45. Nance, A. D. "No Easy Answer," California Journal of Elementary Education, XXIX (February, 1961), pp. 189-92
46. Nicholas, A. "Reading With Phonics," Instructor, LXIX (February, 1960), p. 98.





47. Olsen, A. W. "Phonics and Success in Beginning Reading," Journal of Developmental Reading, VI (Summer, 1963), pp. 256-60.
48. Robinson, Helen M. "Research Comparing Phonic and Combination Methods," Elementary School Journal, LXIII (May, 1963).
49. Rogers, Maurine V. "Comprehension in Oral and Silent Reading," Journal of Genetic Psychology, XVII (1937) pp. 394-97.
50. Rudisill, Mabel. "Interrelations of Functional Phonic Knowledge, Reading, Spelling, and Mental Age," Elementary School Journal, LVII (February, 1957), pp. 264-67.
51. Russell, David H. Children Learn To Read. Toronto: Ginn and Company, 1961.
52. Russell, David H. "A Diagnostic Study of Spelling Readiness," Journal of Educational Research, XXXVII (December, 1943), pp. 276-83.
53. Santeusanio, Nancy Carola. "Evaluation of a Planned Program for Teaching Homophones in Beginning Reading." Unpublished Doctoral Thesis, Boston University of Education, 1962.
54. Salzer, Richard Trevelyn. "Phonic Consciousness of Children With Different Instructional Backgrounds." Unpublished Doctoral Thesis, Urbana, Illinois, 1962.
55. Sexton, Elmer K., and John S. Herron. "The Newark Phonics Experiment," Elementary School Journal, XXVIII (May, 1928), pp. 690-701, cited in Nila B. Smith. "What Research Tells Us About Word Recognition," Elementary School Journal, LV (April, 1955), pp. 440-446.
56. Smith, Nila B. "What Research Says About Phonic Instruction," Journal of Educational Research, LI (September, 1957), pp. 1-9.
57. \_\_\_\_\_. "What Research Tells Us About Word Recognition," Elementary School Journal, LV (April, 1955), pp. 440-46.
58. Tate, Harry L. "The Influence of Phonics on Silent Reading in Grade One," Elementary School Journal, XXVII (June, 1937), pp. 752-763.



59. Templin, Mildred C. "Phonic Knowledge and Its Relation to the Spelling and Reading Achievement of Fourth Graders," Journal of Educational Research, XLVII (February, 1954), pp. 441-454.
60. Tiffin, Joseph and Mark McKinnis. "Phonic Ability: Its Measurement and Relation to Reading Ability," School and Society, LI (February, 1940), pp. 190-2.
61. Valentine, C. W. "Experiments on the Methods of Teaching Reading," Journal of Experimental Pedagogy, II (1913-1914), pp.99-112, cited in P. A. Witty and R. A. Sizemore. "Phonics in the Reading Program: A Review and an Evaluation," Elementary English, XXXII (October, 1955), pp. 355-371.
62. Watkins, Mary. "A Comparison of the Reading Proficiencies of Normal Progress and Reading Disability Cases of The Same I.Q. and Reading Level." Dissertation Abstracts, Volume XIV (1954), Number 4, p. 644.
63. Whipple, Guy M. (ed.). The Twenty-Fourth Yearbook of the National Society for the Study of Education. Bloomington, Illinois: Public School Publishing Company, 1925.
64. Wilson, Frank T. and Agnes Burke. "Reading Readiness in a Progressive School," Teachers College Record, XXXVIII (April, 1937), pp. 565-80.
65. Wilson, Frank et al. "Reading Progress in Kindergarten and Primary Grades," Elementary School Journal, XXXVII (February, 1938), pp. 442-49.
66. Winch, W. A. "Teaching Beginners to Read in English; Its Methods, Results, and Psychological Bases," Journal of Educational Research Monographs, Number 8, Bloomington. Illinois: Public School Publishing Company, 1925.
67. Witty, P. A. and R. A. Sizemore. "Phonics in the Reading Program: A Review and an Evaluation," Elementary English, XXXII (October, 1955), pp. 355-71.
68. A Critical Review of Research and Opinion on Phonics. Albany, New York: The University of the State of New York, The State Department of Education, 1963.
69. How To Teach Phonics and the Role Phonics Plays in Your Reading Program (Report Prepared by the Reading Workshop of the American Book Company, The American Book Co., 1958).





MATERIALS USED IN CONSTRUCTING THE READING  
TESTS USED IN THIS STUDY

Funk and Wagnalls Standard Handbook of Synonyms, Antonyms, and Prepositions. New York: Funk and Wagnalls Company, 1947.

Gray, William S. On Their Own in Reading. Chicago: Scott, Foresman and Company, 1960

Guidebooks to Accompany the New Basic Readers, Curriculum Foundation Series. (Grade One to Three). Toronto: W. J. Gage and Company Ltd., 1956.

Thorndike, E. L., and Clarence L. Barnhart. Thorndike-Barnhart Advanced Junior Dictionary. Chicago: Scott, Foresman and Company, 1951.

Thorndike, Edward L., and Irving Lorge. The Teachers Wordbook of 30,000 Words. New York: Bureau of Publications, Teachers College, Columbia University, 1944.

Rodale, Jerome I. (ed.). The Synonym Finder. Emmaus, Pennsylvania: Rodale Books, 1961.

Webster's Third New International Dictionary. Springfield, Massachusetts: G. C. Merriam Company, 1961.



## APPENDICES





## APPENDIX A

- I. SYLLABICATION PRINCIPLES
- II. ACCENT GENERALIZATIONS



## SYLLABICATION PRINCIPLES

1. If the first vowel in a word is followed by two consonants, the first syllable usually ends with the first of the two consonants.
2. If the first vowel element in a word is followed by a single consonant, that consonant usually begins the second syllable.
3. If a word ends in 'le' preceded by a consonant, that consonant usually begins the last syllable.
4. The syllables in a word often do not break between consonant blends, or other special two letter consonant symbols (th,sh,ch).
5. If a word ends in 'ed' preceded by the letter 't' or 'd' and another consonant, the last syllable begins with the 't' or 'd'.

## ACCENT GENERALIZATIONS

1. In most two-syllable words that end in a consonant followed by 'y', the first syllable is accented and the second unaccented.
2. In inflected and derived forms, the accent usually falls on or within the root word.
3. If 'de, re, be, ex, or a' is the first syllable in a word, it is usually unaccented.





4. If the final syllable of a word is 'le', preceded by a consonant, it is unaccented.
5. If 'tion' or 'ture' is the final syllable of a word, it is unaccented.

The following patterns of accent for multisyllable words were included for Grade Seven.

6. An accent (primary or secondary) always occurs on the first or second syllable of English words.
7. A common pattern of accent is a secondary accent on the first or second syllable, an unaccented syllable, and then the primary accent.
8. The primary accent occurs on the syllable preceding the suffixes, 'ion, ity, ic, ical, ian, ial, ious', and on the second syllable preceding the suffix 'ate', for example, affectation, surreptitious.



## APPENDIX B

- I. PHONICS TEST
- II. CHANGES MADE IN PHONICS TEST AS A RESULT OF PILOT STUDY.





PHONICS TESTSection 1A (Consonants: Beginning and ending--Vowels in closed syllables)

- |         |       |       |       |         |       |       |       |
|---------|-------|-------|-------|---------|-------|-------|-------|
| 1. bem  | _____ | _____ | _____ | 2. dob  | _____ | _____ | _____ |
| 3. fet  | _____ | _____ | _____ | 4. hus  | _____ | _____ | _____ |
| 5. kon  | _____ | _____ | _____ | 6. vid  | _____ | _____ | _____ |
| 7. wos  | _____ | _____ | _____ | 8. yeb  | _____ | _____ | _____ |
| 9. tem  | _____ | _____ | _____ | 10. cum | _____ | _____ | _____ |
| 11. jeg | _____ | _____ | _____ | 12. mip | _____ | _____ | _____ |
| 13. gud | _____ | _____ | _____ | 14. rop | _____ | _____ | _____ |
| 15. sab | _____ | _____ | _____ |         |       |       |       |

Section 1B (Consonant blends)

- |         |       |         |       |          |       |
|---------|-------|---------|-------|----------|-------|
| 1. clup | _____ | 2. fron | _____ | 3. gris  | _____ |
| 4. tran | _____ | 5. swed | _____ | 6. crin  | _____ |
| 7. bret | _____ | 8. glit | _____ | 9. stris | _____ |

Section 1C (Controllers . . . r,l,w)

- |         |       |         |       |         |       |
|---------|-------|---------|-------|---------|-------|
| 1. blar | _____ | 2. scur | _____ | 3. flir | _____ |
| 4. smaw | _____ | 5. skol | _____ | 6. ter  | _____ |
| 7. snal | _____ |         |       |         |       |

Section 1D (Consonant digraphs)

- |         |       |          |       |         |       |
|---------|-------|----------|-------|---------|-------|
| 1. chas | _____ | 2. shan  | _____ | 3. thob | _____ |
| 4. whes | _____ | 5. zeck  | _____ | 6. quin | _____ |
| 7. mosh | _____ | 8. gitch | _____ | 9. seth | _____ |

Section 1E (Open syllables)

- |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|
| 1. po | _____ | 2. mu | _____ | 3. ri | _____ |
| 4. te | _____ | 5. fa | _____ | 6. ky | _____ |



Section 1F (Vowels: Beginning)

- |             |             |             |
|-------------|-------------|-------------|
| 1. et _____ | 2. ab _____ | 3. ud _____ |
| 4. ig _____ | 5. os _____ |             |

Section 1G (Hard and soft c and g)

- |              |              |              |
|--------------|--------------|--------------|
| 1. gen _____ | 2. cof _____ | 3. gam _____ |
| 4. cil _____ | 5. ces _____ |              |

Section 1H (Final e)

- |               |               |               |
|---------------|---------------|---------------|
| 1. nobe _____ | 2. rafe _____ | 3. sebe _____ |
| 4. tife _____ | 5. hute _____ |               |

Section 11A (Vowel digraphs)

- |                |                |               |
|----------------|----------------|---------------|
| 1. moud _____  | 2. voit _____  | 3. noaf _____ |
| 4. fain _____  | 5. luet _____  | 6. toen _____ |
| 7. keat _____  | 8. moy _____   | 9. vay _____  |
| 10. doot _____ | 11. coun _____ |               |

Section 11B (Phonograms)

- |                 |                 |                 |
|-----------------|-----------------|-----------------|
| 1. hing _____   | 2. mang _____   | 3. hink _____   |
| 4. nill _____   | 5. dant _____   | 6. kell _____   |
| 7. desion _____ | 8. lamous _____ | 9. mought _____ |

Section 11C (Silent letters)

- |               |               |               |
|---------------|---------------|---------------|
| 1. knet _____ | 2. gnan _____ | 3. wrat _____ |
|---------------|---------------|---------------|





Section III (Syllabication)

- |                  |                  |                 |
|------------------|------------------|-----------------|
| 1. sible _____   | 2. comted _____  | 3. jepted _____ |
| 4. lundle _____  | 5. duggle _____  | 6. fundol _____ |
| 7. himut _____   | 8. malded _____  | 9. ponted _____ |
| 10. delrim _____ | 11. cample _____ | 12. nusig _____ |
| 13. vifted _____ | 14. dadle _____  | 15. algry _____ |
| 16. tephon _____ | 17. posrud _____ | 18. hogam _____ |
| 19. dabbet _____ | 20. dacret _____ | 21. setin _____ |
| 22. deply _____  | 23. higtat _____ | 24. tapod _____ |
| 25. emblat _____ |                  |                 |

Section IV (Accent)

- |                    |                   |                  |
|--------------------|-------------------|------------------|
| 1. abation _____   | 2. winture _____  | 3. tindle _____  |
| 4. holty _____     | 4. sagation _____ | 6. opty _____    |
| 7. resad _____     | 8. tapture _____  | 9. higgie _____  |
| 10. debon _____    | 11. nefty _____   | 12. exput _____  |
| 13. capation _____ | 14. veature _____ | 15. seble _____  |
| 16. timation _____ | 17. dation _____  | 18. rofty _____  |
| 19. defle _____    | 20. coture _____  | 21. bedow _____  |
| 22. dimture _____  | 23. inty _____    | 24. mandle _____ |
| 25. abam _____     |                   |                  |



1B	1C	1D	1E	1F	1G	1H	11A	11B	11C	111	IV	TOTAL

NAME \_\_\_\_\_

GRADE \_\_\_\_\_





## CHANGES MADE IN PHONICS TEST AS A RESULT OF PILOT STUDY

Section IIA

The word "kay" was changed to "vay". This change was found to be necessary as the word "kay" is a girl's name and in most cases, was immediately recognized by the pupils.

Section IIB

"Fink" was recognized by the children as a word. It was decided to change this word to "hink".

Section IV (Accent)

The five words ending in 'le' in the Syllabication Section were also marked for accent. To make the scoring easier, it was decided to insert five other words ending in 'le', in the Accent Section. These five words were - tindle, higgle, seble, defle, mandle.



## APPENDIX C

- I. STORIES (READING TEST) - GRADE THREE
- II. CHANGES MADE IN GRADE THREE READING TEST AS  
A RESULT OF PILOT STUDY.





STORY #1

We had had innumerable misadventures stumbling over the jagged terrain but the men conceded it was an opportune occasion to arrive at the impregnable fortress of the despot in this forane spot. It had been a drab, misty day with dribbling rain. Now the sky was limpid, and falcons and linnets flitted among the colonnades. These had been placed so as to impede access. The fragrance of the ling circumventing the cistern tickled the nostrils of the attackers. In the water flamingoes dabbled listlessly. Indecision mounted in the minds of the men. But for years, the people had been compelled to reside as chattels. The notion of unshackling them from the thongs of the repugnant knave incited them to their task. They would ferret him from his abode and foray his plantation. They would resort to destruction by fire if necessary.



STORY #2

The county of Memphis issued a promulgation regarding the impounding of stray members of the canine family within its jurisdiction. My companion Tom and I were appointed for the task. What adventures! I once quavered at the sight of a big, mottled, steely-looking mongrel. Tom was careful not to badger him but crept furtively to a hole in the fence and wriggled through. I was not so fast and whacked the dog. I missed, fell and fractured my elbow. Before a month had passed, I had compiled a nomenclature of the feelings aroused in me at the sight of the many kinds of dogs.

When it was all finished, Tom was enraptured and thought we had done reasonably well. However, I felt we had done a shoddy job.





CHANGES MADE IN GRADE THREE READING TEST  
AS A RESULT OF PILOT STUDY

Story I - Grade Three

Though some words which did not wholly conform to phonic principles remained in the final draft of the stories, but were not considered in scoring\*, every attempt was made to find words as phonetic as possible.

Thus as a result of the pilot study, the word "habitation" was considered not to be entirely phonetic, for according to phonic rules the first syllable would end after the first 'a'. Thus the word "plantation" was substituted.

For reasons similar to those stated above, the word "liberating" was found not to conform wholly to phonic principles. This word was replaced by the word "unshackling".

In the word "peasants" the vowel digraph 'ea' was not pronounced according to phonic principles. This word was replaced by the word "people". However, the latter word was considered to be in the sight vocabulary of Grade Three pupils, and was not marked for phonic principles.

Story II - Grade Three

The word "stealthily" was changed to "furtively" as the vowel digraph in the former word confused many pupils.

The word "experienced" was changed to "aroused". The former word had not been selected as a word containing phonic

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\*See Appendix J.



principles in the original story, but since the word caused many pupils much difficulty, it was decided to replace it with a word which could be scored for its phonic principles.

The word "various" in the original story also caused much difficulty, and often resulted in long delays by the children in reading the story. Since this word had not been selected for its phonic principles, it was decided to replace it by an easier word, "many". Thus the sentence, "Before a month had passed, I had compiled a nomenclature of the feelings experienced at the sight of various kinds of dogs", was changed to "Before a month had passed, I had compiled a nomenclature of the feelings aroused in me at the sight of the many kinds of dogs."





## APPENDIX D

- I. STORIES (READING TEST) - GRADE SEVEN.
- II. CHANGES MADE IN GRADE SEVEN READING TEST AS A  
RESULT OF PILOT STUDY.



STORY #1

We had taken advantage of our sabbatical to make an itinerary of Europe and Asia. Having been debilitated by a rambunctious fortnight in France, we journeyed to a torpid little seaport on the Mediterranean. Here we were to await a consignment of quinine in order to be inoculated before continuing to Dubrovnik, that famous old port of Ragusa, and from there to the East. Thus for a week, we did nothing but bespatter the local politicians who recently had disenfranchised the non-taxpayers or else we visited Wallenstein, the local hoaxter, who also engaged in palmistry, and who prognosticated our impending fate.

On leaving the latter's domicile one clammy afternoon we were captivated by a maelstrom of activity propinquant to the shore just yards from the door. We speculated it might be some tendentious pugilist, who had just left the Wagnerian Inn. We listened but could decipher nothing from the much maundering. On coming closer, we discerned a man standing in a small coracle, clutching in his right hand, a freshly caught bream, from the mandible of which protruded a golden monocle, believed to be the one pilfered from the local museum and for the revendication of which an elephantine reward was propounded.





STORY #2

The term "action" is a very generic and fundamental one in Piaget's psychological system. It is the quintessence of his lexicon. In the sensory-motor period these actions are externalized and discernible for the most part. As the child progresses through the postinfancy years, his cognitive actions become more and more internalized, schematic, and mobile, and of course more and more divested of their corporeal, substantial qualities. But most important of all these now internal, now representational cognitive actions gradationally cohere to form increasingly complected and tightly integrated systems of actions. These systems are equilibrated coordinated affairs, in the sense that one action may abrogate or otherwise counterbalance another previously performed. That is to say the system these actions constitute is veritably a system with indisputable structural attributes; it is something quite other than a simple concatenation or colligation of juxtaposed terms.



CHANGES MADE IN GRADE SEVEN READING TEST AS  
A RESULT OF PILOT STUDY

Story I - Grade Seven

The word "Schopenhauer" was changed as it was found that the beginning was confusing to the pupils. Some tended to pronounce the first syllable with an 'sh' sound as in "ship", while others tried a 'sch' sound, as in "school".

The word "Baluchistan" was changed as the 'ch' in this word led to ambiguity in pronunciation.

The word "Wobble" was found to be within the sight vocabulary of these pupils.

The substitutions for the above three words were respectively,

Wallenstein

Dubrovnik

Wagnerian

Story II - Grade Seven

No changes were found to be necessary in this story.





## APPENDIX E

WORDS OF STORIES MARKED FOR SYLLABICATION AND ACCENT



## STORY I - GRADE THREE

a bode/	in de ci/ sion
ac/ cess	in cit/ ed
at tack/ er	jag/ ged
con ced/ ed	knave
col on nades/	lim/ pid
cis/ tern	lin/ nets
chat/ tel	ling
cir cum vent/ ing	list/ less ly
com pelled/	mis ad ven/ tures
des/ pot	mis/ ty
de struc/ tion	mount/ ed
dab/ bled	nos/ trils
drab	no/ tion
drib/ bling	op por tune/
for/ tress	oc ca/ sion
fo rane/	plan ta/ tion
for/ ay	re side/
fal/ cons	re sort/ ing
flit/ ted	re pug/ nant
fla min/ goes	stum/ bling
fra/ grance	ter rain/
fer/ ret	thongs
in nu/ mer a ble	tick/ led
im preg/ na ble	un shack/ ling
im pede/	





## STORY 2 - GRADE THREE

ad ven/ tures

ap point/ ed

a roused/

bad/ ger

ca/ nine

com pan/ ion

coun/ ty

el/ bow

en rap/ tured

frac/ tured

fur/ tive ly

im pound/ ing

jur is dic/ tion

Mem/ phis

mon/ grel

mot/ tled

no/ men cla ture

pro mul ga/ tion

qua/ vered

re gard/ ing

rea/ son a bly

shod/ dy

steel/ y

whacked

wig/ gled

com piled/



## STORY 1 - GRADE SEVEN

be spat/ ter

bream

cap/ ti vat ed

clam/ my

clutch/ ing

con sign/ ment

cor/ a cle

de bil/ i tat ed

de ci/ pher

dis en fran/ chised

dom/ i cile

Du brov/ nik

el e phan/ tine

fort/ night

hoax/ er

im pend/ ing

in oc/ u lated

i tin/ er ary

jour/ neyed

mael/ strom

dis cern/

man/ di ble

maun/ der ing

mon/ o cle

palm/ is try

pil/ fered

pol i ti /cians

prog nos/ ti cat ed

pro pin/ quant

pro pound/ ed

pro trud/ ed

pu/ gi list

quin/ ine

Ra gu/ sa

ram bunc/ tious

re ven/ di ca tion

sab bat/ i cal

spec/ u lat ed

ten den/ tious

tor/ pid

Wag ner/ i an

Wal len/ stein





## STORY 2 - GRADE SEVEN

ab/ ro gate	in/ te grat ed
at trib/ utes	in ter/ na lized
cog/ ni tive	in dis/ pu ta ble
co here/	in dis <sup>or</sup> pu/ ta ble
col/ li ga tion	jux ta posed/
com plec/ ted	lex/ i con
con cat/ e na tion	mo/ bile
con/ sti tute	per formed/
co or/ di nat ed	post/ in fan cy
cor po/ re al	pro gress/ es
coun/ ter bal ance	psy cho log/ i cal
dis cer/ ni ble	quin tes/ sence
di vest/ ed	rep re sen ta/ tion al
e qui li/ brat ed	sche mat/ ic
ex ter/ na lized	sen/ sor y
fun da men/ tal	struc/ tur al
gen er/ ic	sub stan/ tial
gra da/ tion al ly	tight/ ly
	ver i ta/ bly



## APPENDIX F

ANALYSIS OF WORDS FOR PHONIC PRINCIPLES;  
AND ASSIGNED SCORE





## WORDS CONTAINED IN STORY #1 (GRADE THREE)

- 3 ABODE vowel beginning, final e, accent.
- 5 ACCESS vowel beginning, soft c, closed syllable (1)  
accent, final consonant.
- 6 ATTACKERS vowel beginning, consonant digraph, controller,  
closed syllable (1), final consonant, accent.
- 5 CONCEDED hard c, soft c, final e, closed syllable (1),  
final consonant.
- 3 COLONNADES hard c, final e, final consonant.
- 4 CISTERN soft c, controller, closed syllable (1), final  
consonant.
- 4 CHATTELS consonant digraph, controller, closed syllable (1),  
final consonant.
- 4 COMPELLED hard c, controller, closed syllable (1), final  
consonant.
- 4 DESPOT closed syllable (2), initial consonant, final  
consonant.
- 6 DESTRUCTION consonant blend, phonogram, open syllable (1),  
closed syllable (1), accent, initial consonant.
- 3 DRAB consonant blend, closed syllable (1), final consonant.
- 4 DRIBBLING consonant blend (2), phonogram, closed syllable (1).
- 4 DABBLED closed syllable (1), accent, initial consonant, final  
consonant.
- 5 FORTRESS consonant blend, controller, closed syllable (1),  
initial consonant, final consonant.



- 2 FORANE final e, initial consonant.
- 5 FALCONS hard c, controller, closed syllable (1), initial  
consonant, final consonant.
- 4 FLITTED consonant blend, closed syllable (2), final  
consonant.
- 3 FRAGRANCE consonant blend (2), closed syllable (1)
- 5 FLAMINGOES consonant blend, hard g, closed syllable (1),  
final consonant, vowel digraph.
- 4 FERRET controller, closed syllable (1) initial consonant,  
final consonant.
- 2 FORAY vowel digraph, initial consonant.
- 4 INNUMERABLE vowel beginning, controller, open syllable (1)  
accent.
- 4 IMPREGNABLE consonant blend, vowel beginning, closed syllable (1),  
accent.
- 3 IMPEDE vowel beginning, final e, accent.
- 5 INDECISION vowel beginning, soft c, phonogram, open syllable (1),  
accent.
- 5 INCITED vowel beginning, soft c, final e, accent, final  
consonant.
- 4 JAGGED closed syllable (2), initial consonant, final consonant.
- 2 KNAVE final e, silent letter.
- 4 LIMPID closed syllable (2), initial consonant, final consonant.
- 4 LINNETS closed syllable (2), initial consonant, final consonant.
- 2 LING phonogram, initial consonant.





- 4 LISTLESSLY closed syllable (2), accent, initial consonant.
- 6 MISADVENTURES phonogram, closed syllable (2), accent,  
initial consonant, final consonant.
- 3 MISTY closed syllable (1), accent, initial consonant.
- 3 MOUNTED vowel digraph, initial consonant, final consonant.
- 5 NOSTRILS controller, closed syllable (1), initial consonant,  
final consonant, consonant blend.
- 4 NOTION phonogram, open syllable (1), accent, initial consonant.
- 4 OPPORTUNE vowel beginning, final e, controller, accent.
- 5 OCCASION vowel beginning, phonogram, hard c, open syllable (1),  
accent.
- 5 PLANTATION consonant blend, phonogram, closed syllable (1),  
open syllable (1), accent.
- 4 RESIDE final e, open syllable (1), accent, initial consonant.
- 5 RESORT controller, open syllable (1), accent, initial consonant,  
final consonant.
- 5 REPUGNANT phonogram, open syllable (1), closed syllable (1),  
accent, initial consonant.
- 5 STUMBLING consonant blend (2), phonogram, closed syllable (1),  
accent.
- 4 TERRAIN vowel digraph, controller, initial consonant, final  
consonant.
- 3 THONGS consonant digraph, phonogram, final consonant.
- 5 TICKLED consonant digraph, closed syllable (1), accent, initial  
consonant, final consonant.



- 6 UNSHACKLING consonant digraph (2), phonogram, vowel beginning,  
closed syllable (1), accent.
- 6 CIRCUMVENTING hard c, soft c, phonogram, closed syllable (2),  
controller.





## WORDS CONTAINED IN STORY #2 (GRADE THREE)

- 5 ADVENTURES vowel beginning, phonogram, closed syllable (1),  
accent, final consonant.
- 4 APPOINTED vowel beginning, vowel digraph, accent, final  
consonant.
- 4 AROUSED vowel beginning, vowel digraph, accent, final  
consonant.
- 5 BADGER soft g, controller, closed syllable (1), initial  
consonant, final consonant.
- 3 CANINE hard c, final e, open syllable (1).
- 4 COMPANION hard c, phonogram, closed syllable (2).
- 4 COMPILED hard c, final e, closed syllable (1), final consonant.
- 3 COUNTY hard c, vowel digraph, accent.
- 3 ELBOW vowel beginning, vowel digraph, accent.
- 5 ENRAPTURED vowel beginning, phonogram, closed syllable (1),  
accent, final consonant.
- 5 FRACTURED consonant blend, phonogram, closed syllable (1),  
final consonant, accent.
- 4 FURTIVELY phonogram, controller, accent, initial consonant.
- 4 IMPOUNDING vowel beginning, vowel digraph, phonogram, accent.
- 4 JURISDICTION phonogram, closed syllable (1), accent, initial  
consonant.
- 5 MEMPHIS consonant digraph, closed syllable (2), initial  
consonant, final consonant.



- 5 MONGREL consonant blend, controller, closed syllable (1),  
initial consonant, final consonant.
- 4 MOTTLED closed syllable (1), accent, initial consonant,  
final consonant.
- 7 NOMENCLATURE consonant blend, phonogram, open syllable (2),  
closed syllable (1), accent, initial consonant.
- 7 PROMULGATION consonant blend, hard g, phonogram, controller,  
open syllable (2), accent.
- 4 QUAVERED consonant digraph, controller, final consonant,  
open syllable (1).
- 6 REGARDING hard g, controller, phonogram, open syllable (1),  
accent, initial consonant.
- 4 REASONABLY vowel digraph, closed syllable (1), accent,  
initial consonant.
- 3 SHODDY consonant digraph, closed syllable (1), accent.
- 3 STEELY consonant blend, vowel digraph, accent.
- 4 WHACKED consonant digraph (2), closed syllable (1), final  
consonant.
- 4 WRIGGLED silent letter, closed syllable (1), accent, final  
consonant.





## WORDS CONTAINED IN STORY #1 (GRADE SEVEN)

- 7    BESPATTER    consonant blend, controller, open syllable (1),  
closed syllable (1), accent, initial consonant,  
final consonant.
- 3    BREAM    consonant blend, vowel digraph, final consonant.
- 5    CAPTIVATED    Hard c, final e, closed syllable (1), accent,  
final consonant.
- 3    CLAMMY    consonant blend, closed syllable (1), accent.
- 3    CLUTCHING    consonant blend, consonant digraph, phonogram.
- 5    CONSIGNMENT    hard c, phonogram, silent letter, closed syllable  
(1), accent.
- 2    CORACLE    hard c, accent.
- 5    DEBILITATED    final e, open syllable (1), accent, initial  
consonant, final consonant.
- 8    DECIPHER    consonant digraph, soft c, controller, open  
syllable (2), accent, initial consonant, final  
consonant.
- 5    DISCERNED    soft c, controller, closed syllable (1), initial  
consonant, final consonant.
- 8    DISENFRANCHISED    consonant blend, consonant digraph, final e,  
closed syllable (2), accent, initial consonant,  
final consonant.
- 3    DOMICILE    soft c, accent, initial consonant.
- 7    DUBROVNIK    consonant blend, open syllable (1), closed syllable  
(2), accent, initial consonant, final consonant.



- 4 ELEPHANTINE consonant digraph, vowel beginning, closed syllable (1), accent.
- 4 FORTNIGHT silent letter, controller, initial consonant, final consonant.
- 4 HOAXER vowel digraph, controller, initial consonant, final consonant.
- 4 IMPENDING vowel beginning, closed syllable (1), accent, phonogram.
- 5 INOCULATED vowel beginning, final e, closed syllable (1), accent, final consonant.
- 5 ITINERARY vowel beginning, controller (2), closed syllable (1), accent.
- 4 JOURNEYED vowel digraph, accent, initial consonant, final consonant.
- 5 MAELSTROM consonant blend, vowel digraph, closed syllable (1), accent, final consonant.
- 3 MANDIBLE closed syllable (1), accent, initial consonant.
- 5 MAUNDERING vowel digraph, phonogram, controller, initial consonant, accent.
- 2 MONOCLE accent, initial consonant.
- 4 PALMISTRY consonant blend, silent letter, accent, initial consonant.
- 4 PILFERED controller (2), initial consonant, final consonant.
- 4 POLITICIANS phonogram, accent, initial consonant, final consonant.



- 7 PROGNOSTICATED consonant blend, hard c, final e, closed syllable (2), accent, final consonant.
- 6 PROPINQUANT consonant blend, consonant digraph, phonogram, open syllable (1), closed syllable (1), accent.
- 5 PROPOUNDED consonant blend, vowel digraph, open syllable (1), accent, final consonant.
- 6 PROTRUDED consonant blend (2), final e, open syllable (1), accent, final consonant.
- 5 PUGILIST soft g, phonogram, open syllable (1), accent, initial consonant.
- 2 QUININE consonant digraph, final e.
- 6 RAMBUNCTIOUS consonant digraph, phonogram, closed syllable (2), accent, initial consonant.
- 4 RAGUSA hard g, open syllable (1), accent, initial consonant.
- 7 REVENDICATION hard c, phonogram, open syllable (1), closed syllable (2), initial consonant, accent.
- 5 SABBATICAL phonogram, closed syllable (2), accent, initial consonant.
- 4 SPECULATED consonant blend, final e, accent, final consonant.
- 5 TENDENTIOUS phonogram, closed syllable (2), accent, initial consonant.
- 4 TORPID controller, closed syllable (1), initial consonant, final consonant.
- 5 WAGNERIAN phonogram, controller, closed syllable (1), accent, initial consonant.





- 7 WALLENSTEIN consonant digraph, vowel digraph, controller,  
closed syllable (1), accent, initial consonant,  
final consonant.



## WORDS CONTAINED IN STORY #2 (GRADE SEVEN)

- 4 ABROGATE vowel beginning, hard g, accent, final e.
- 5 ATTRIBUTES consonant blend, vowel beginning, final e, accent,  
final consonant.
- 4 COGNITIVE hard c, phonogram, closed syllable (1), accent.
- 2 COHERE hard c, open syllable (1).
- 6 COLLIGATION hard g, hard c, phonogram, controller, open  
syllable (1), accent.
- 6 COMPLETED consonant blend, hard c, closed syllable (2),  
accent, final consonant.
- 7 CONCATENATION hard c (2), phonogram, closed syllable (2),  
open syllable, accent.
- 5 CONSTITUTE consonant blend, hard c, final e, closed syllable  
(1), accent.
- 6 COORDINATED hard c, final e, controller, phonogram, open  
syllable (1), final consonant.
- 6 CORPOREAL hard c, controller, phonogram, open syllable (2),  
accent.
- 6 COUNTERBALANCE hard c, vowel digraph, phonogram, controller (2),  
accent.
- 5 DISCERNIBLE soft c, controller, closed syllable (1), accent,  
initial consonant.
- 4 DIVESTED closed syllable (1), accent, initial consonant, final  
consonant.





- 7 EQUILIBRATED consonant blend, consonant digraph, vowel  
beginning, final e, accent, final consonant,  
open syllable (1).
- 6 EXTERNALIZED vowel beginning, final e, controller (2), accent,  
final consonant.
- 5 FUNDAMENTAL phonogram, closed syllable (2), accent, initial  
consonant.
- 4 GENERIC soft c, controller, final consonant, accent.
- 6 GRADATIONALLY consonant blend, phonogram (2), open syllable  
(2), accent.
- 5 INTEGRATED consonant blend, vowel beginning, final e, accent,  
final consonant.
- 6 INTERNALIZED vowel beginning, final e, controller (2), accent,  
final consonant.
- 3 INDISPUTABLE vowel beginning, closed syllable (1), accent.
- 5 JUXTAPOSED final e, closed syllable (1), accent, initial  
consonant, final consonant.
- 6 LEXICON hard c, closed syllable (2), initial consonant, final  
consonant, accent.
- 3 MOBILE final e, initial consonant, open syllable (1).
- 4 PERFORMED controller (2), initial consonant, final consonant.
- 3 POSTINFANCY closed syllable (1), accent, initial consonant.
- 5 PROGRESSES consonant blend (2), closed syllable (1), accent,  
initial consonant.
- 6 PSYCHOLOGICAL phonogram, open syllable (2), accent, silent  
letter (2).



- 5   QUINTESSENCE   consonant digraph, phonogram, closed syllable (2),  
                  accent.
- 7   REPRESENTATIONAL   phonogram (2), open syllable (1) closed syllable  
                  (1), accent, initial consonant.
- 5   SCHEMATIC   consonant digraph, open syllable (1), closed syllable  
                  (1), accent, final consonant.
- 4   SENSORY   controller, closed syllable (1), accent, initial consonant.
- 6   STRUCTURAL   consonant blend, consonant digraph, phonogram, closed  
                  syllable (1), accent, controller.
- 6   SUBSTANTIAL   consonant blend, phonogram, closed syllable (2),  
                  accent, initial consonant.
- 3   TIGHTLY   silent letter, accent, initial consonant.
- 2   VERITABLY   accent, initial consonant.



## APPENDIX G

## WORDS OF EACH STORY GROUPED BY PHONIC PRINCIPLE





## STORY #1 GRADE THREE

CONSONANT BLENDS de-str-uction, dr-ab, dr-ib-bl-ing, for-tr-ess,  
fl-itted, fl-amingoes, fr-a-gr-ance, im-pr-egnable,  
 no-str-ils, pl-antation, st-um-bl-ing. 14

CONSONANT DIGRAPHS atta-ck-ers, ch-attels, th-ongs, ti-ck-led,  
 un-sh-a-ck-ling. 6

VOWEL BEGINNINGS access, abode, attackers, innumerable, impregnable,  
 impede, indecision, incited, opportune, occasion,  
 unshackling. 11

HARD AND SOFT 'C' AND 'G' Ac-c-ess, c-on-c-eded, c-olonnades,  
c-istern, c-ompelled, fal-c-ons,  
 inde-c-ision, in-c-ited, oc-c-asion,  
 flamin-g-oes, c-ir-c-umventing. 13

FINAL E abo-ode, colonn-ade-s, conc-ede-d, for-ane, imp-ede, inc-ite-d,  
 inc-ite-d, kn-ave, opport-une, res-ide. 9

VOWEL DIGRAPH flaming-oe-s, for-ay, m-ou-nted, terr-ai-n. 4

PHONOGRAM destruc-tion, dribbl-ing, indeci-sion, l-ing, misadven-  
ture-s, no-tion, occa-sion, planta-tion, repug-nant,  
 stumbl-ing, th-ong-s, unshackl-ing, circumvent-ing. 13

SILENT LETTERS k-nave 1

CONTROLLERS attack-er-s, cist-er-n, chatt-el-s, comp-el-led,  
 f-or-tress, f-al-cons, f-er-ret, innum-er-able, nostr-il-s,  
 opp-or-tune, res-or-ting, t-er-rain, c-ir-cumventing. 14



OPEN AND CLOSED SYLLABLES    ac-ces-s, at-tack-ers, con-ceded, cis-tern,  
                                   chat-tels, com-pelled, des-pot, de-st-ru-tion  
                                   drab, drib-bling, dab-bled, fort-ress, fal-con-s,  
                                   flitted, fra-grance, fla-min-goes, fer-ret,  
                                   in-nu-merable, im-preg-nable, in-de-cision,  
                                   jag-ged, lim-pid, lin-nets, lis-t-less-ly,  
                                   mis-ad-ven-tures, mis-ty, nos-trils, no-tion,  
                                   oc-ca-sion, plan-ta-tion, re-side, re-sorting  
                                   re-pug-nant, stum-bling, tick-led, un-shack-ling,  
                                   cir-cum-ven-ting 48

ACCENT    access, abode, attackers, dabbled, destruction, innumerable,  
                                   impregnable, impede, indecision, incited, listlessly, misad-  
                                   ventures, misty, notion, opportune, occasion, plantation,  
                                   reside, resort, repugnant, stumbling, tickled, unshackling. 23

INITIAL CONSONANTS    despot, destruction, dabbled, fortress, forane  
                                   falcons, ferret, foray, jagged, limpid, ling,  
                                   linnets, listlessly, misadventures, misty,  
                                   mounted, nostrils, notion, reside, resorting,  
                                   repugnant, terrain, tickled. 23

FINAL CONSONANTS    access, attackers, conceded, colonnades, cistern,  
                                   chattels, compelled, despot, drab, dabbled, fortress,  
                                   falcons, flitted, flamingoes, ferret, incited,  
                                   jagged, limpid, linnets, misadventures, mounted,  
                                   nostrils, resort, tickled, terrain, thongs 26





SYLLABICATION - See Appendix E\*

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\*Words - drab knave, ling, thongs - were omitted.



STORY #2 (GRADE THREE)

- CONSONANT BLENDS pr-omulgation, fr-actured, mon-gr-el, nomen-cl-ature,  
st-eely. 5
- CONSONANT DIGRAPHS qu-avered, wh-a-ck-ed, Mem-ph-is, sh-oddy. 5
- VOWEL BEGINNINGS impounding, appointed, adventures, aroused,  
elbow, enraptured 6
- HARD AND SOFT 'C' AND 'G' c-ounty, promul-g-ation, re-g-arding,  
c-anine, c-ompanion, bad-g-er, c-ompile 7
- FINAL 'E' can-ine, comp-ile-d. 2
- VOWEL DIGRAPH c-ou-nty, imp-ou-nding, app-oi-nted, ar-ou-sed,  
elb-ow, r-ea-sonably, st-ee-ly. 7
- PHONOGRAM promulga-tion, regard-ing, impound-ing, jurisdic-tion  
compan-ion, adven-ture, enrap-ture-d, frac-ture-d,  
furt-ive-ly, nomencla-ture. 10
- SILENT LETTERS w-riggled 1
- CONTROLLERS reg-ar-ding, badg-er, f-ur-tively, mongr-el, quav-ered,  
prom-ul-gation. 6
- OPEN AND CLOSED SYLLABLES Mem-phis, pro-mul-ga-tion, re-garding,  
ca-nine, juris-dic-tion, com-pan-ion,  
ad-ven-ture, bad-ger, com-piled,



en-rap-tured, frac-tured, mon-grel, mot-tled,  
no-men-cla-ture, rea-son-ably, shod-dy,  
whack-ed, wrig-gled, qua-vered.

24

ACCENT county, promulgation, regarding, impounding, jurisdiction,  
 appointed, adventure, aroused, elbow, enraptured, fractured,  
 furtively, mottled, nomenclature, reasonably, shoddy,  
 wriggled, steely.

18

INITIAL CONSONANTS badger, furtively, jurisdiction, Memphis,  
 mongrel, mottled, nomenclature, regarding,  
 reasonably

9

FINAL CONSONANTS adventures, appointed, aroused, badger,  
 compiled, enraptured, fractured, Memphis,  
 mongrel, mottled, quavered, whacked, wriggled.

13

SYLLABICATION - See Appendix E\*

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\*Word - whacked was omitted





- CONSONANT BLENDS be-sp-atter, br-eam, cl-ammy, cl-utching, disen-fr-anchised, Du-br-ovnik, mael-str-om, palmi-str-y, pr-ognosticated, pr-opinquant, pr-o-tr-uded, sp-eculated, pr-opounded. 14
- CONSONANT DIGRAPHS clu-tch-ing, deci-ph-er, disenfran-ch-ised, ele-ph-antine, propin-qu-ant, qu-inine, rambun-ct-ious, Wallen-st-ein. 8
- VOWEL BEGINNINGS elephantine, impending, inoculated, itinerary. 4
- HARD AND SOFT 'C' AND 'G' c-aptivated, c-onsignment, c-oracle, de-c-ipher, dis-c-ern, prognosti-c-ated, domi-c-ile, pu-g-ilist, revendi-c-ation, Ra-g-usa. 10
- FINAL 'E' captiv-ate-d, debilit-ate-d, disenfranch-ise-d, inocul-ate-d, prognostic-ate-d, protr-ude-d, quin-ine, specul-ate-d. 8
- VOWEL DIGRAPH br-ea-m, h-oa-xer, m-ae-lstrom, j-ou-rneyed, m-au-ndering, prop-ou-nded, Wallenst-ei-n. 7
- PHONOGRAM clutch-ing, consign-ment, impend-ing, maunder-ing, politic-ian-s, propinqu-ant, pugil-ist, rambunct-ious, revendica-tion, sabbat-ical, tendent-ious, Wagneri-an. 12
- SILENT LETTERS fortni-gh-t, consi-g-nment, pa-l-mistry. 3



CONTROLLERS bespatt-er, deciph-er, disc-er-n, f-or-tnight,  
 hoax-er, maund-er-ing, pil-f-er-ed, t-or-pid,  
 itin-er-ar-y, Wagn-er-ian, W-al-lenstein

13

OPEN AND CLOSED SYLLABLES be-spat-ter, cap-tivated, clam-my,  
con-signment, de-bilitated, de-ci-pher,  
dis-cern, dis-en-fran-chised, Du-brov-nik,  
 ele-phan-tine, im-pen-ding, i-noc-ulated,  
 mael-strom, man-dible, prog-nos-ticated,  
pro-pin-quant, pro-pounded, pro-truded,  
pu-gilist, Ra-gu-sa, ram-bunc-tious,  
sab-bat-ical, ten-den-tious, tor-pid,  
 i-tin-erary, re-ven-di-ca-tion, Wag-nerian,  
 Wal-len-stein.

40

ACCENT bespatter, captivated, clammy, consignment, coracle, debi-  
 litated, decipher, disenfranchised, elephantine, impending,  
 inoculated, itinerary, journeyed, mandible, maundering,  
 monocle, palmistry, politicians, prognosticated, propinquant,  
 propounded, protruded, pugilist, Ragusa, rambunctious,  
 revendication, sabbatical, speculated, tendentious, domicile,  
 Dubrovnik, Wagnerian, Wallenstein.

33

INITIAL CONSONANTS bespatter, debilitated, decipher, discerned,  
 disenfranchised, domicile, Dubrovnik, fortnight,  
 hoaxer, journeyed, maelstrom, mandible, maundering,





monocle, palmistry, pilfered, politicians,  
 pugilist, rambunctious, Ragusa, revendication,  
 sabbatical, tendentious, torpid, Wagnerian,  
 Wallenstein.

26

FINAL CONSONANTS bespatter, bream, captivated, debilitated,  
 decipher, discerned, disenfranchised, Dubrovnik,  
 fortnight, hoaxer, inoculated, journeyed, mael-  
 strom, pilfered, politicians, prognosticated,  
 propounded, protruded, speculated, torpid,  
 Wallenstein.

21

SYLLABICATION - See Appendix E\*

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\*Word - bream was omitted.



STORY #2 (GRADE SEVEN)

CONSONANT BLENDS at-tr-ibutes, com-pl-ected, con-st-itute,  
 equili-br-ated, gr-adationally, inte-gr-ated,  
pr-o-gr-esses, str-uctural, sub-st-antial. 10

CONSONANT DIGRAPHS e-qu-ilibrated, qu-intessence, sch-ematic,  
 stru-ct-ural. 4

VOWEL BEGINNINGS abrogate, attributes, equilibrated, externalized,  
 integrated, internalized, indisputable. 7

HARD AND SOFT 'C' AND 'G' abro-g-ate, c-ognitive, c-ohere,  
c-olligation, c-ompleted, c-oncatenation,  
c-onstitute, c-ordinated, c-orporeal,  
c-ounterbalance, dis-c-erned, g-eneric,  
 lexi-c-on. 15

FINAL 'E' abrog-ate, attrib-ute-s, constit-ute, coordin-ate-d,  
 equilibr-ate-d, external-ize-d, integr-ate-d, internal-ize-d,  
 juxtap-ose-d, mob-ile. 10

VOWEL DIGRAPH c-ou-nterbalance 1

PHONOGRAM cognit-ive, colliga-tion, concatena-tion, counterbal-ance,  
 corpore-al, fundament-al, grada-tion-al-ly, psycholog-ical,  
 quintess-ence, representa-tion-al, structur-al,  
 substanti-al. 14



- SILENT LETTERS p-syc-h-ological, ti-gh-tly. 3
- CONTROLLERS col-ligation, co-or-dinated, cor-poreal, count-er-b-  
al-ance, disc-ern-ible, ext-er-n-al-ized, gen-er-ic,  
int-er-n-al-ized, per-f-orm-ed, sens-or-y, struct-ur-al. 15
- OPEN AND CLOSED SYLLABLES cog-nitive, co-here, colli-ga-tion,  
com-plect-ed, con-cat-e-na-tion, con-stitute,  
co-ordinated, cor-po-re-al, dis-cernible,  
di-ves-ted, equi-li-brated, fun-da-men-tal,  
gra-da-tionally, in-dis-putable, jux-ta-posed,  
lex-i-con, mo-bile, postin-fan-cy,  
pro-gres-ses, psy-cho-logical, quin-tess-ence,  
rep-re-sent-ta-tional, sche-mat-ic, sen-sory,  
struc-tural, sub-stan-tial. 39
- ACCENT abrogate, attributes, cognitive, colligation, complected,  
concatenation, constitute, coordinated, corporeal, counter-  
balance, discernible, divested, equilibrated, externalized,  
fundamental, generic, gradationally, integrated, internalized,  
indisputable, juxtaposed, lexicon, postinfancy, progresses,  
psychological, quintessence, representational, schematic,  
sensory, structural, substantial, tightly, veritably. 33
- INITIAL CONSONANTS divested, discernible, fundamental, juxtaposed,  
lexicon, mobile, performed, postinfancy, repre-  
sentational, sensory, substantial, tightly,  
veritably. 13





FINAL CONSONANTS attributes, complected, divested, equilibrated,  
externalized, generic, integrated, internalized,  
juxtaposed, lexicon, performed, progresses,  
schematic, coordinated. 14

SYLLABICATION - See Appendix E 36

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## APPENDIX H

## DIRECTIONS FOR ADMINISTERING THE TESTS





## DIRECTIONS FOR ADMINISTERING TESTS

In general, the "Directions for Administration" of the Phonics Test were the same as those printed on the Boyd Test of Phonetic Skills. They read:

Each child should be tested individually and alone. It is suggested that the examiner introduce the test in the following manner: Say, "I have some cards here which have words on them. They are not real words, but ones which have been made up. We call them nonsense words because they do not mean anything. I want you to read them to me out loud." (Present the first card.) "Read this one for me." Present only one card at a time. Once the card had been presented and removed do not allow the child to look at it again.

You may encourage the child by saying: "You are trying very hard." or "Yes, go on." It is correct at any time to encourage the child. It is not, however, permissible to tell him how he is achieving. Do not give him any indication concerning his score. The administrator may repeat the sounds which the child gives only for the purpose of clarification. It is recommended that the examiner be certain after a definite pause on the part of the child that the last sounds he made were his final answer to the item, Say: "Is this what you said . . . ?" If the child responds negatively, ask him to repeat his answer.

Do not rush the child. This is not a timed test. As far as possible make him feel comfortable. The test may be divided into



two sections for children in grades 2 and 3 and for those in any grade who appear to be disturbed.

The record sheet should be as inconspicuous as possible. The child's attention should be directed solely to the cards. If the child is very curious about what the examiner is noting on the record sheet, he may say: "I am writing your answers on this sheet of paper. This helps me to remember your answers later." The sole purpose of such comment is to set the child at ease.

The response given by the child to each item should be recorded immediately. If the answer is correct, a check should be made in the appropriate column. If the answer varies in any way from the accepted response, it should be recorded phonetically.

The procedure of using a record sheet was used for all but the last two sections (Syllabication and Accent) of the Phonics Test. These latter two sections were taped, and were transcribed and marked later.

### Reading Test

The Reading Tests were introduced in the following manner: "After you read the words which I have on these cards (Phonics Test) I want you to read these two stories for me." (The child was given a brief glance at the stories which were typed in ordinary type print on 8" x 11" stationery, and each story was enclosed in a separate folder.) "It is important that you do not skip over any words."



## APPENDIX J

- I. RULES FOLLOWED IN SCORING THE TESTS.
- II. SAMPLE SCORING SHEET FOR READING TESTS.
- III. RULES FOLLOWED TO AVOID DUPLICATION IN SCORING.
- IV. PRINCIPLES OMITTED WHEN SCORING READING TESTS.





## DIRECTIONS FOR SCORING

Phonics Test

The "Directions for Scoring" as printed on the Boyd Test of Phonetic Skills were followed in scoring the Phonics Test.

They read:

One point is given for each of the tested phonetic elements recognized and pronounced correctly. Thus, where cl as a phonetic element is tested, the child is given one point if he recognizes and pronounces this even though the remainder of the item is incorrect. For example, he may pronounce the item clup as "clip" or as "clap" etc. Emphasis in evaluation is placed on qualitative interpretation of performance.

Other points involved in marking the tests of which the readers should be aware were:

1. The possible total of closed syllables was 46.\* This total was composed of the 15 closed syllables in Section 1A, and the 31 closed syllables in the words for Syllabication listed in Section III.

2. The possible total of open syllables was 16.\* This total was made up of the 6 open syllables in Section IE, and the 10

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\*Refer to Table III, page 46.



open syllables in words, 1, 7, 12, 14, 16, 18, 20, 21, 22, and 24 in Section IV (Syllabication).

3. In marking the words for Syllabication (Section III) each item was scored correct, if the child made the break between the correct syllables even though the syllable itself might be pronounced incorrectly. For example, the word "lundle" was marked correct if the child pronounced it as "loondle".

4. The rules for accent as listed in Appendix A were followed in scoring Section IV (Accent).

#### Scoring the Reading Tests.

An "answer sheet" similar to the one on the following page was used for each child.

In the column, headed "WORDS", each of the words selected for analysis was transcribed, unless the word was correct in which case a tick mark (✓) was placed in the appropriate column.

In the column headed "Accent", a tick mark (✓) was placed if the accent was correct. If the word was not being marked for accent, for example, the word "drab", the block under "Accent" was shaded in.

After all words had been transcribed, the scorer referred to a sheet as is found in Appendix F to determine which phonic principles had been omitted or incorrectly pronounced by the child. The abbreviations for such principles were inserted immediately after the transcribed word.





## SAMPLE SCORING SHEET FOR READING TESTS

	WORDS	ERROR SCORE					Total Error	Total Score
		Accent	Omiss.	Substit.	Addit.	Exagg.		
1	TRANSCRIBED WORD (PRINCIPLES WRONG)							
2								
3								
4								
5								

## NUMBER OF PRINCIPLES WRONG, BY SECTION

Consonant blend \_\_\_\_\_

Controller \_\_\_\_\_

Consonant dig. \_\_\_\_\_

Silent Letter \_\_\_\_\_

Vowel begin. \_\_\_\_\_

Open syll. \_\_\_\_\_

Hard C-G \_\_\_\_\_

Closed Syll. \_\_\_\_\_

Soft C-G \_\_\_\_\_

Accent \_\_\_\_\_

Final E \_\_\_\_\_

Initial C. \_\_\_\_\_

Vowel dig. \_\_\_\_\_

Final C. \_\_\_\_\_

Phonogram \_\_\_\_\_

Syllab. \_\_\_\_\_

Total \_\_\_\_\_



The number of principles incorrectly pronounced were totalled in the final column and in the appropriate section at the end of the sheet.

This total was the negative score, or the number wrong. To get the positive score, i.e., the number correct, it was simply necessary to subtract this total from the total possible score.

The transcribed words were then analysed for the various types of error, and these were entered in the appropriate columns and totalled.



RULES FOLLOWED TO AVOID DUPLICATION IN  
SCORING THE WORDS OF THE STORIES

1. If a word begins with a vowel but is followed by a controller, it is scored as a vowel beginning, for example, elephantine.
2. If a word contains a vowel digraph and is followed by a controller, it is scored as a vowel digraph, e.g., maelstrom.
3. If a word ends in ered it is scored as a controller, e.g., pilfered.
4. Words ending in ture are scored as phonograms.
5. Words beginning with consonants are scored for the initial consonant, unless the word begins with a 'c', in which case it is scored as a hard or soft 'c', and unless the word begins with a consonant blend or digraph, in which case it is scored for these principles, e.g., conceded, thongs, flitted.
6. Words ending in consonants are scored for the final consonant principle unless the word ends in a phonogram, in which case the phonogram principle only is scored, e.g., notion.
7. For Grade Three, accent is marked for words ending in "tion, ture, y, le," and for words beginning with "ab, ex, de, etc." For Grade Seven, in addition to the above, words of three or more syllables are also marked for their accent. The rules followed in deciding whether or not the accent was correct may be found in Appendix A.





## PRINCIPLES OMITTED WHEN SCORING THE TESTS

## Grade Three - Story I

flamingoes open syllable

fragrance open syllable

foray controller

forane controller

## Grade Three-Story II

Jurisdiction controller

## Grade Seven-Story I

coracle controller

debilitated controller

domicile closed syllable

elephantine final e

monocle closed syllable

politicians controller

speculated closed syllable

Ragusa open syllable

quinine closed syllable

## Grade Seven-Story II

divested open syllable

equilibrated open syllable

generic closed syllable

representational closed syllable

progresses Open syllable

veritably controller,  
and closed  
syllable

indisputable open syllable



## APPENDIX K

MEAN INTELLIGENCE SCORES OF GRADE THREE  
AND GRADE SEVEN PUPILS





## APPENDIX K

## MEAN INTELLIGENCE QUOTIENT SCORES\*

		Grade Three	Grade Seven
Total group	(36)	123.0	116.4
High readers	(12)	122.8	124.9
Average readers	(12)	123.7	118.9
Low readers	(12)	123.5	105.4
High-girls	(6)	123.0	131.2
High-boys	(6)	122.5	118.7
Average-girls	(6)	120.3	113.0
Average-boys	(6)	127.0	124.8
Low-girls	(6)	124.3	108.8
Low-boys	(6)	122.6	102.0

\* (Grade Three) Detroit Advanced First Grade Intelligence Test, Form A.

\* (Grade Seven) The Laycock Mental Abilities Test.





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